

Appointment

From: Alston, Lala [Alston.Lala@epa.gov]
Sent: 5/15/2017 8:54:35 PM
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CC: South, Peter [South.Peter@epa.gov]; Alston, Lala [Alston.Lala@epa.gov]; Loving, Shanita [Loving.Shanita@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Johnson, Tanya [Johnson.Tanya@epa.gov]; McKinney, Voronina [mckinney.voronina@epa.gov]
Subject: NAEMS OIG Response
Location: RTP-OAQPS-C401A
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Appointment

From: Page, Steve [Page.Steve@epa.gov]
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To: Page, Steve [Page.Steve@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Jones, Mike [Jones.Mike@epa.gov]; Harnett, Bill [Harnett.Bill@epa.gov]
CC: South, Peter [South.Peter@epa.gov]; Alston, Lala [Alston.Lala@epa.gov]; Loving, Shanita [Loving.Shanita@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Johnson, Tanya [Johnson.Tanya@epa.gov]; McKinney, Voronina [mckinney.voronina@epa.gov]
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Location: RTP-OAQPS-C401A
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WRITTEN REPORT OF GEORGE D. THURSTON
REGARDING THE PUBLIC HEALTH BENEFITS OF EPA'S PROPOSED RULEMAKING
REGARDING BEST AVAILABLE RETROFIT TECHNOLOGY FOR TEXAS SOURCES
UNDER THE REGIONAL HAZE RULE

RE: ENVIRONMENTAL PROTECTION AGENCY,
Promulgation of Air Quality Implementation Plans; State of Texas; Regional Haze and Interstate
Transport of Pollution Affecting Visibility Federal Implementation Plan, 82 Fed. Reg. 912
(proposed Jan. 4, 2017)
EPA Docket No.: EPA-R06-OAR-2016-0611; FRL-9955-77-Region 6

May 4, 2017

PROFESSIONAL EXPERIENCE OF THE AUTHOR

I am Professor of Environmental Medicine at the New York University (NYU) School of Medicine.

I have a Bachelor of Science degree in Engineering from Brown University, and a Masters and Doctorate of Environmental Health Sciences from the Harvard University School of Public Health. I have over 30 years of subsequent experience in the evaluation of the human health effects of air pollution. I have served on the U.S. Environmental Protection Agency's Clean Air Scientific Committee (CASAC) that advises the EPA on the promulgation of ambient air quality standards from 2007 through 2010, and I have served on the National Academy of Science's Committee on the Health Effects of Incineration from 1995 through 1999. I have published extensively regarding the health effects of inhaled air pollutants on humans, particularly as it relates to asthma attacks, hospital admissions, and mortality, in prominent scientific journals, such as Science, Lancet, Thorax, and The Journal of the American Medical Association (JAMA). I have also been called upon by both the U.S. House of Representatives and the U.S. Senate on multiple occasions in recent decades to provide testimony before them regarding the human health effects of air pollution, most recently on October 10, 2010. A statement of my qualifications is attached to my affidavit as Exhibit T-1.

SUMMARY OF REPORT

The purpose of this report is to document the adverse human health effects that are associated with exposures to air pollutants from fossil fuel-fired utility power plants generally, and in particular, the adverse human health effects that will be avoided by the application of EPA's proposed sulfur dioxide (SO₂) emission limits for 18 individual electric generating units (EGU) at nine power plants in Texas.

This report documents how emissions from these 18 EGUs contribute to the serious and well-documented adverse human health effects known to be associated with exposure to air pollution from fossil fuel-fired power plants. The documentation I present confirms this conclusion, including both epidemiological and toxicological evidence that I and others have published in the medical and scientific literature. In this work, I also rely upon the expert report submitted by Dr. Gray. Applying this information to the U.S. EPA approved Environmental

Benefits Mapping and Analysis Program (BenMAP) model, I then provide calculations of the excess adverse human health impacts that would occur each year if EPA's proposed BART controls for these 18 Texas EGUs are not installed, as well as the annual economic valuation of those health impacts across 14 states.¹

BACKGROUND

The adverse health consequences of breathing air pollution from sources such as fossil-fuel fired utility power plants are well documented in the published medical and scientific literature. During the past decades, medical research examining air pollution and public health has shown that air pollution is associated with a host of serious adverse human health effects. This documentation includes impacts revealed by observational epidemiology, and confirmed by controlled chamber exposures, showing consistent associations between air pollution and adverse impacts across a wide range of human health outcomes.

Observational epidemiology studies provide the most compelling and consistent evidence of the adverse effects of air pollution. "Epidemiology" is literally "the study of epidemics," but includes all statistical investigations of human health and potentially causal factors of good or ill health. In the case of air pollution, such studies follow people as they undergo varying real-life exposures to pollution over time, or from one place to another, and then statistically inter-compare the health impacts that occur in these populations when higher (versus lower) exposures to pollution are experienced. In such studies, risks are often reported in terms of a Relative Risk (RR) of illness, wherein a $RR = 1.0$ is an indication of no change in risk after exposure, while a $RR > 1.0$ indicates an increase in health problems after pollution exposure, and that air pollution is damaging to health.

These epidemiological investigations are of two types: 1) population-based studies, in which an entire city's population might be considered in the analysis; and 2) cohort studies, in which selected individuals, such as a group of asthmatics, are considered. Both of these types of

¹ In April 2015, I prepared a separate report documenting the human health benefits across ten states resulting from EPA's proposed sulfur dioxide emission reductions at 14 Texas EGUs. *See* U.S. Environmental Protection Agency, Approval and Promulgation of Implementation Plans; Texas and Oklahoma; Regional Haze State Implementation Plans; Interstate Transport State Implementation Plan To Address Pollution Affecting Visibility and Regional Haze; Federal Implementation Plan for Regional Haze and Interstate Transport of Pollution Affecting Visibility; Proposed Rule, 79 Fed. Reg. 74,818 (Dec. 16, 2014), EPA Docket No. EPA-R06-OAR-2014-0754-0070.

epidemiologic studies have shown confirmatory associations between air pollution exposures and increasing numbers of adverse impacts, including:

- decreased lung function (a measure of our ability to breathe freely);
- more frequent asthma symptoms;
- increased numbers of asthma and heart attacks;
- more frequent emergency department visits;
- additional hospital admissions; and
- increased numbers of deaths.

The fact that the effects of air pollution have been shown so consistently for so many health endpoints, and in so many locales, indicates these associations to be causal.

Fine Particulate Matter (PM) is among the key air pollutants emitted from power plants that have been revealed by research to adversely affect human health. These research studies have been conducted for a wide array of geographic areas, including eastern North America. PM_{2.5} air pollution has been carefully studied in recent decades. PM is composed of two major components: “primary” particles, or soot, emitted directly into the atmosphere by pollution sources, and; “secondary” particulate matter, formed in the atmosphere from gaseous pollutants, such as the sulfur oxides (SO_x) and nitrogen oxides (NO_x) also emitted by coal-fired power plants. After formation in the atmosphere, this secondary PM largely condenses upon the smallest existing primary particles that, collectively, represent the greatest surface area for the secondary PM to condense upon. These particles are very small, commonly having an aerodynamic diameter of less than 1.0 micrometer (μm) – a fraction of the diameter of a human hair. For example, after it is released from a smokestack, gaseous SO_x is chemically converted in the atmosphere to become sulfate PM.

In addition to lung damage, recent epidemiological and toxicological studies of PM air pollution have shown adverse effects on the heart, including an increased risk of heart attacks. For example, when PM stresses the lung (*e.g.*, by inducing edema), it places extra burden on the heart, which can induce fatal complications for persons with cardiac problems. Indeed, for example, Peters et al. (2001) found that elevated concentrations of fine particles in the air can elevate the risk of Myocardial Infarctions (MI's) within a few hours, and extending 1 day after PM exposure. The Harvard University team found that a 48 percent increase in the risk of MI was associated with an increase of 25 $\mu\text{g}/\text{m}^3$ PM_{2.5} during a 2-hour period before the onset of MI,

and a 69 percent increase in risk to be related to an increase of $20 \mu\text{g}/\text{m}^3$ $\text{PM}_{2.5}$ in the 24-hour average 1 day before the MI onset (Peters et al., 2001). Numerous other U.S. studies have also shown qualitatively consistent acute cardiac effects, such as the Sullivan et al. (2005) study of acute myocardial infarctions in King County, Washington; the Zanobetti and Schwartz (2006) study of hospital admissions through emergency departments for myocardial infarction (ICD-9 code 410); and the Zanobetti et al. (2009) study that examined the relationship between daily $\text{PM}_{2.5}$ concentrations and emergency hospital admissions for cardiovascular causes, myocardial infarction, and congestive heart failure in 26 U.S. communities during 2000-2003.

Cardiac effects at the biological level have also been documented in both animal and human studies. Animal experiments at Harvard University by Godleski et al. (1996, 2000) indicate that exposures to elevated concentrations of ambient PM can result in cardiac related problems in dogs that had been pre-treated (in order to try to simulate sensitive individuals) to induce coronary occlusion (i.e., narrowed arteries in the heart) before exposing them to air pollution. The most biologically and clinically significant finding was that, in these dogs, the PM affected one of the major electrocardiogram (ECG) markers of heart attacks (myocardial ischemia) in humans, known as elevation of the ST segment. Cardiac effects at the biological level have been found in human studies, as well. For example, Pope et al. (1999) and Gold et al. (1999) found that PM exposure is associated with changes in human heart rate variability. Such changes in heart rate variability (HRV) may reflect changes in cardiac autonomic function and risk of sudden cardiac death. In the Pope et al. study, repeated ambulatory ECG monitoring was conducted on 7 subjects for a total of 29 person-days before, during, and after episodes of elevated pollution. After controlling for differences across patients, elevated particulate levels were found to be associated with (1) increased mean heart rate, (2) decreased SDNN, a measure of overall HRV, (3) decreased SDANN, a measure that corresponds to ultra-low frequency variability, and (4) increased r-MSSD, a measure that corresponds to high-frequency variability. This confirms, at the individual level, that biological changes do occur in heart function as a result of PM exposure, supporting the biological plausibility of the epidemiological associations between PM exposure and cardiac illnesses.

Epidemiologic research conducted on U.S. residents has indicated that acute exposure to PM air pollution is associated with increased risk of mortality. A nationwide time-series statistical analysis by the Health Effects Institute (HEI, 2003) of mortality and PM_{10} air pollution in 90 cities across the US indicates that, for each increase of $10 \mu\text{g}/\text{m}^3$ in daily PM_{10} air pollution

concentration, there is an associated increase of approximately 0.3% in the *daily* risk of death. While a 0.3 % change in the daily death risk may seem small, it is important to realize that such added risks apply to the entire population, and accumulate day after day, week after week, and year after year, until they account for thousands of needless daily deaths from air pollution in the U.S. each year. Indeed, I concur with the most recent U.S. EPA Particulate Matter Integrated Science Assessment (ISA) (USEPA, 2009), which unequivocally states that “Together, the collective evidence from epidemiologic, controlled human exposure, and toxicological studies is sufficient to conclude that *a causal relationship exists between short term exposures to PM_{2.5} and cardiovascular effects . . . and mortality.*”²

In addition to the acute health effects associated with daily PM pollution, the long-term exposure to fine PM is also associated with increased lifetime risk of death and has been estimated to take years from the life expectancy of people living in the most polluted cities, relative to those living in cleaner cities. For example, in the Six-Cities Study (which was one key basis for the setting of the original PM_{2.5} annual standard in 1997), Dockery et al. (1993) analyzed survival probabilities among 8,111 adults living in six cities in the central and eastern portions of the United States during the 1970’s and 80’s. The cities were: Portage, WI (P); Topeka, KS (T); a section of St. Louis, MO (L); Steubenville, OH (S); Watertown, MA (M); and Kingston-Harriman, TN (K). Air quality was averaged over the period of study in order to study long-term (chronic) effects. As shown in Figure 1, it was found that the long-term risk of death, relative to the cleanest city, increased with fine particle exposure, even after correcting for potentially confounding factors such as age, sex, race, smoking, etc.

In addition, a study that I wrote with co-authors, published in the Journal of the American Medical Association (JAMA), shows that long-term exposure to combustion-related fine particulate air pollution is an important environmental risk factor for cardiopulmonary and lung cancer mortality. Indeed, as shown in Figure 2, this study indicates that the increase in risk of lung cancer from long-term exposure to PM_{2.5} in a city like New York was of roughly the same size as the increase in lung cancer risk of a non-smoker who breathes passive smoke while living with a smoker, or about a 20% increase in lung cancer risk. *See Pope, CA, et al., 2002.*

² U.S. Environmental Protection Agency (2009a) (emphasis added).

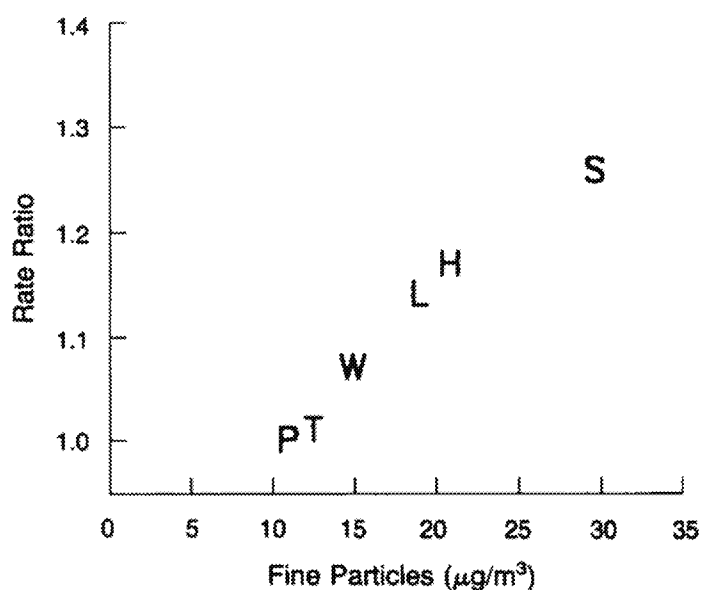


Figure 1. The Harvard Six-Cities Study showed that the lifetime risk of death increased across 6 U.S. cities as the average fine PM levels increased. (Source: Dockery et al., 1993).

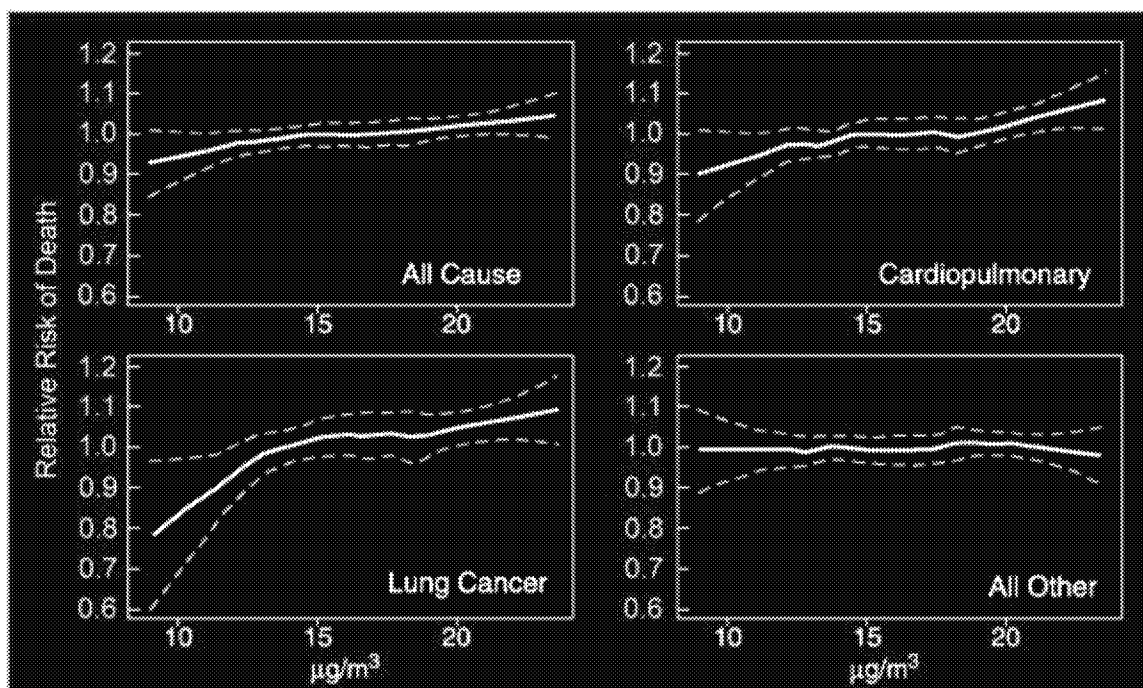


Figure 2. Cardiopulmonary and lung cancer mortality risks increase monotonically with exposure to long-term fine PM (adapted from: Pope, Burnett, Thun, Calle, Krewski, Ito, and Thurston, 2002)

Most studies evaluate whether rising air pollution levels worsen health, but it has also been shown that reducing pollution in the air can result in health benefits to the public. For

example, Pope (1989) conducted a compelling study clearly showing that, when pollution levels diminish, the health of the general public improves. He investigated a period during the winter of 1986-87 when the Geneva Steel mill in the Utah Valley shut down during a strike. The PM levels dropped dramatically in that strike-year winter, as opposed to the winters preceding and following when the steel mill was in operation. As shown in Figure 3 below, hospital admissions in the valley showed the same pattern as the PM air pollution, decreasing dramatically during the strike. As a control, Pope also examined the pollution and hospital admissions records in nearby Cache Valley, where the mill's pollution was not a factor, and no such drop in respiratory admissions was seen, showing that the drop in admissions in the Utah Valley was not due to some cause other than the reduction in the air pollution levels.

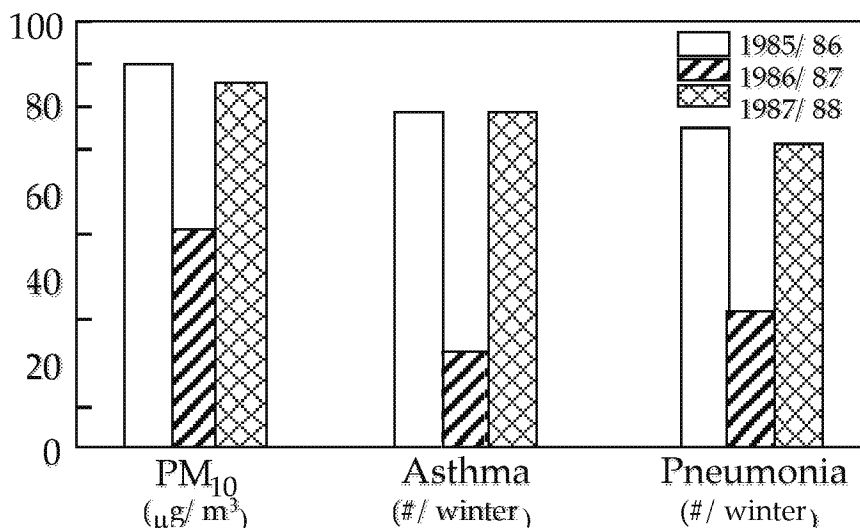


Figure 3. Decreasing PM pollution lowered the number of children's hospital admissions (Source: Pope, 1989).

These studies of the health improvements associated with decreases in PM_{2.5} pollution show that any reduction can be expected to result in commensurate health benefits to the public at ambient levels, even where the National Ambient Air Quality Standards (NAAQS) are already met. A follow-up analysis of the Harvard Six-Cities Study cohort discussed earlier (Dockery et al., 1993), published in the March 15, 2006 issue of *The American Journal of Respiratory and Critical Care Medicine* (Laden et al., 2006), shows that mortality is decreased by lowering PM pollution. This study was carried out in the same six metropolitan areas evaluated in the earlier study, study participants' ages ranged from 25 to 74 at enrollment in 1974, and the scientists tracked both PM air pollution and mortality through 1998 in these populations. The Laden study

found that improved overall mortality (i.e., a risk ratio significantly below 1.0) was associated with decreased mean PM_{2.5} over the study follow-up time (RR = 0.73; 95% per 10 µg/m³, CI = 0.57-0.95). In other words, for each decrease of 1 µg/m³ of PM_{2.5}, the overall death rate from causes such as cardiovascular disease, respiratory illness and lung cancer decreased by nearly 3% (i.e., 10 µg/m³ x 2.7% = 27% decrease, or RR=0.73). The study also found that people who are exposed to lower pollution live longer than they would if they were exposed to higher pollution. Francine Laden, the study's lead author, explained its key findings in the March 21, 2006 issue of the New York Times: "For the most part, pollution levels are lower in this country than they were in the 70's and 80's," and "the message here is that if you continue to decrease them, you will save more lives."³ "Consistently," Dr. Laden said, "in the cities where there was the most cleanup, there was also the greatest decrease in risk of death."

Although the Laden study took place in urbanized areas, the same principle can be applied in more rural areas where the air is more pristine: higher concentrations of PM_{2.5}, even at very low overall levels, are associated with greater health risks. Indeed, a more recent Canadian national-level cohort study, Crouse et al. (2012), has shown that the adverse effects of air pollution extend down to very low levels of PM_{2.5}. These investigators calculated hazard ratios (i.e., risk ratios) and 95% confidence intervals (CIs), adjusted for available individual-level and contextual covariates, finding a relative risk (or hazard ratio) of 1.30 (95% CI: 1.18, 1.43) for cardiovascular mortality from Cox proportional hazards survival models with spatial random-effects. Figure 4, taken from the Crouse study, illustrates the finding that mortality risk decreases with decreasing levels of PM_{2.5}, even at ambient PM_{2.5} levels down to 1 µg/m³.

³ Nicholas Bakalar, *Cleaner Air Brings Drop in Death Rate*, New York Times (Mar. 21, 2006), pg F7.

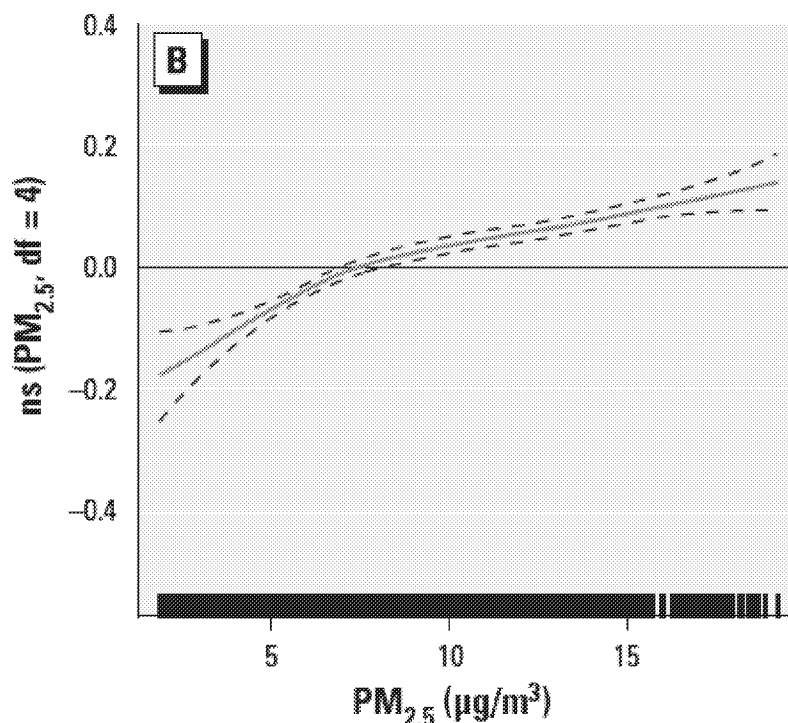


Figure 4. Cardiovascular Mortality Risk vs. $PM_{2.5}$ exposure (solid line) and 95% CIs (dashed lines), showing increasing risk of death with increasing $PM_{2.5}$, even at very low ambient levels of $PM_{2.5}$ air pollution (from Crouse et al., 2012).

Similarly, my own research has verified (as shown in Figure 5) that the association between $PM_{2.5}$ air pollution and cardiovascular mortality extends down to very low $PM_{2.5}$ concentration levels in the US as well (Thurston et al, 2016). Importantly, this study is highly regarded, as it was conducted in a well characterized and large US population: the National Institutes of Health – American Association of Retired Persons (NIH-AARP) Diet and Health Study cohort. The NIH-AARP Study was initiated when members of the AARP, aged 50 to 71 years from 6 US states (California, Florida, Louisiana, New Jersey, North Carolina, and Pennsylvania) and 2 metropolitan areas (Atlanta, Georgia, and Detroit, Michigan), responded to a mailed questionnaire in 1995 and 1996. The NIH-AARP cohort questionnaires elicited information on demographic and anthropometric characteristics, dietary intake, and numerous health-related variables (e.g., marital status, body mass index, education, race, smoking status, physical activity, and alcohol consumption), that was used to control for these factors in the air pollution mortality impact assessment.

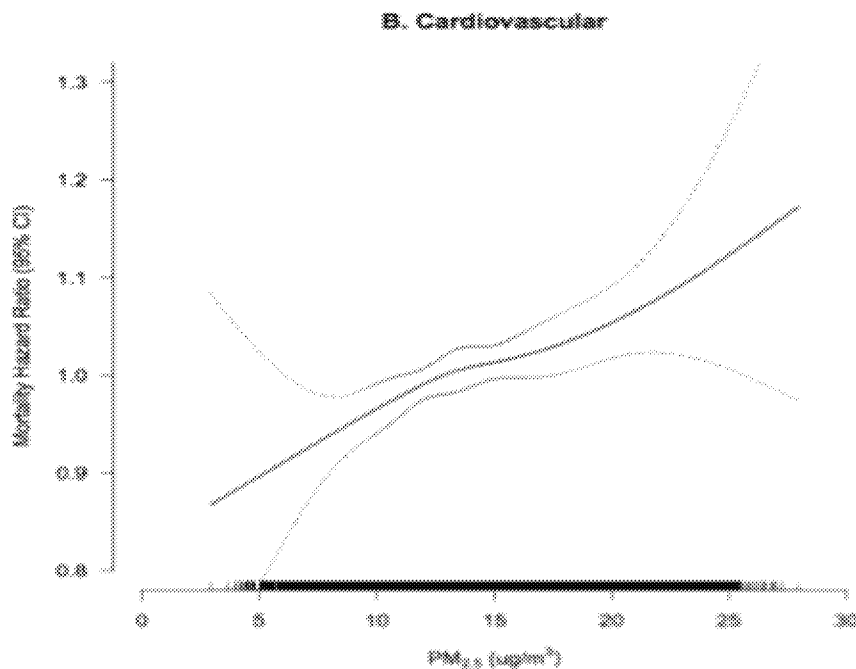


Figure 5. Mortality Risk from Cardiovascular Disease Increases with Rising PM_{2.5} Exposure, Even Well Below the Present US Ambient Air Quality Standard annual limit for PM_{2.5} (12 µg/m³). Thurston *et al.*, 2016a.

Although published too late to be considered by the U.S. EPA in their 2013 standard setting process, the Crouse *et al.* (2012) and Thurston *et al.* (2016a) results indicate that the mortality effects of PM_{2.5} air pollution can occur at even lower ambient air pollution levels than shown by Pope *et al.* 2002, and even lower levels than that at which the U.S. EPA assumed the effects of PM_{2.5} to exist in its 2012 Regulatory Impact Assessment for the revised annual PM NAAQS (U.S. EPA, 2012). These results confirm that, even in places where background air is relatively clean, small changes in air pollution concentration can have population health impacts.

As these studies show, there is no convincing evidence to date showing that there is any threshold below which such adverse effects of PM air pollution will not occur. This lack of a threshold of effects indicates that any reduction in air pollution can be expected to result in commensurate health benefits to the public at ambient levels.

With respect to PM_{2.5} from power plants, my recent studies, and those by others, have also found that long-term exposure to combustion-related fine particulate air pollution is a particularly important environmental risk factor for cardiopulmonary and lung cancer mortality. Air pollutants associated with fossil fuel combustion (e.g., from oil, coal, and natural-gas-fired power plants) have well-documented adverse human health effects. The health impact is particularly high for particulate matter from fossil-fuel-burning facilities, such as coal burning, which has been associated with an ischemic heart disease mortality risk that is roughly five times that of the average for PM_{2.5} particles in general (Thurston *et al.*, 2016b), and more damaging per $\mu\text{g}/\text{m}^3$ than PM_{2.5} from other common sources (Figure 6).

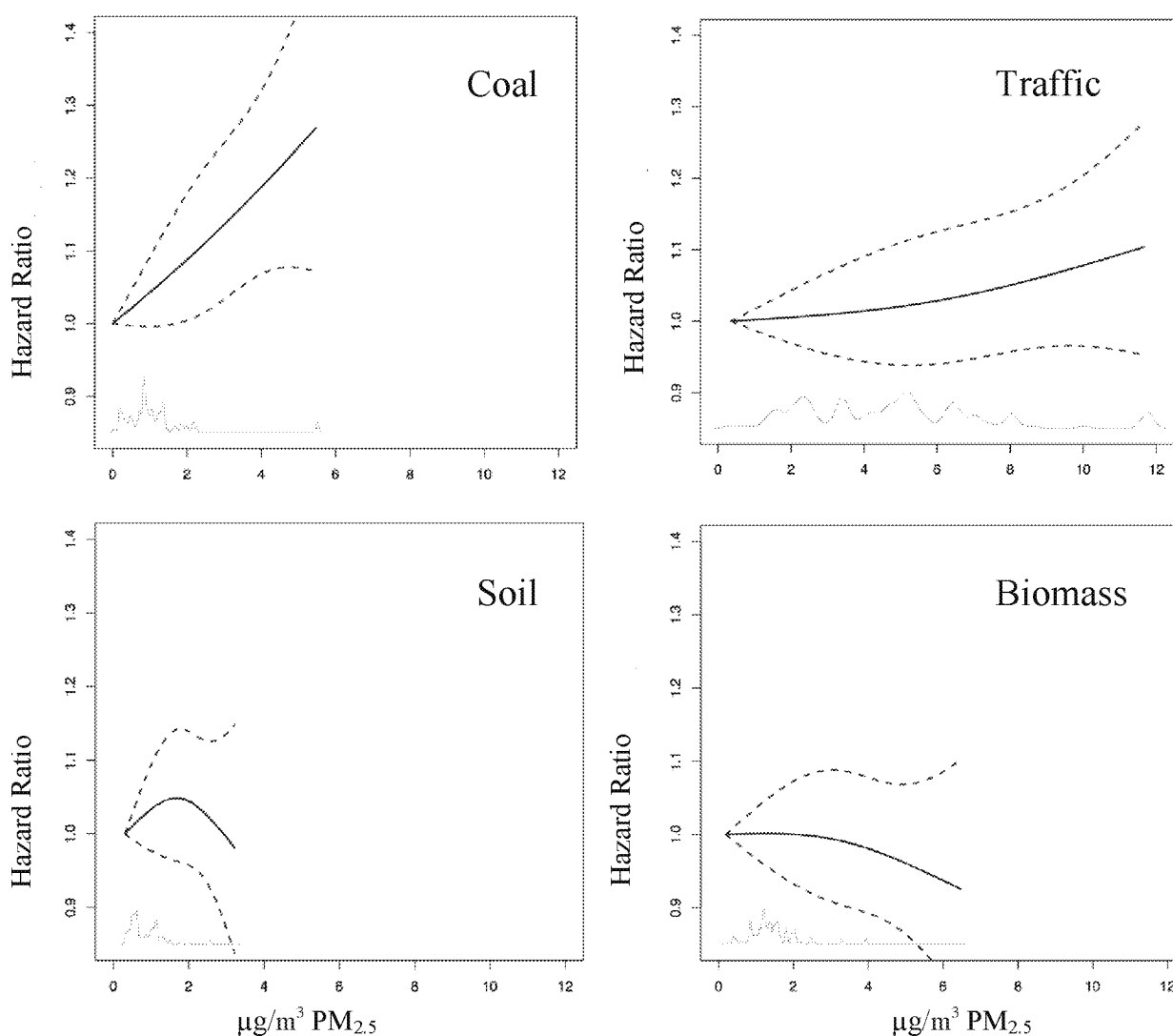


Figure 6. Concentration-response curve (solid lines) and 95% confidence intervals (dashed lines) for source-specific PM_{2.5} mass in the US American Cancer Society (ACS) Cohort. (Thurston *et al.*, 2016b).

Thus, this new study, combined with past studies of US mortality and source-specific PM_{2.5} (e.g., Ozkaynak and Thurston, 1987) indicate that the estimates provided here are conservative underestimates of the health benefits that would result from these proposed emissions controls, because the particles resulting from coal-combustion that will be eliminated are apparently far more toxic to human health than the average PM_{2.5} mass, when considered on per $\mu\text{g}/\text{m}^3$ mass basis. Thus, by assuming in this report that the toxicity of the particles controlled are the of same toxicity as other particles (including, for example, wind blown soil), the estimates provided for the numbers and monetary valuations of the human health benefits of the BART controls are very conservative.

Sulfur oxide (SO_x) exposures have also been associated with adverse health effects, in addition to leading to the secondary formation of PM_{2.5} in the atmosphere. As concluded in the most recent U.S. EPA Risk and Exposure Assessment Report for SO₂ (EPA-452/R-09-007), research studies have provided scientific evidence that is sufficient to infer a similar relationship to also exist between short-term (e.g., daily) SO₂ exposure and adverse effects on the respiratory system. This finding of a causal relationship between SO₂ exposure and increased respiratory morbidity is supported by a large body of recent epidemiologic evidence, as well as by findings from human and animal experimental studies. These epidemiologic and experimental studies encompass a number of endpoints, including ED visits and hospitalizations, respiratory symptoms, airway hyperresponsiveness, and lung function (U.S. EPA, 2009).

Overall, there is a consistency between the epidemiologic study associations and experimental study results, supporting the conclusion that 1) there is indeed a cause-effect relationship between air pollution and negative health effects; and, 2) there is no known threshold below which no effects are experienced. Thus, reductions in air pollution result in commensurate improvements in public health, as provided in this report.

METHODS

The U.S. EPA-approved Environmental Benefits Mapping and Analysis Program (BenMAP) is a Windows-based computer program that uses a Geographic Information System (GIS)-based method to estimate the health impacts and economic benefits occurring when populations experience changes in air quality (Abt Associates, 2010; U.S. EPA, 2015). Analysts have relied upon BenMAP to estimate the health impacts from air quality changes at the city and regional scale, both within and beyond the U.S. A copy of my BenMAP certification is attached as Exhibit T-2. Some of the purposes for which BenMAP has been used include the following:

- Generation of population/community level ambient pollution exposure maps;
- Comparison of benefits across multiple regulatory programs;
- Estimation of health impacts associated with exposure to existing air pollution concentrations;
- Estimation of health benefits of alternative ambient air quality standards.

BenMAP is primarily intended as a tool for estimating the health impacts, and associated economic values, associated with changes in ambient air pollution, as we apply it here. It accomplishes this by computing health impact functions that relate a change in the concentration of a pollutant with a change in the incidence of a health endpoint.

Inputs to health impact functions in this work included:

- The change in ambient air pollution level (as provided by Dr. Andrew Gray, of Gray Sky Solutions);
- Pollutant health effect estimates (based upon the scientific literature and present EPA practice);
- The exposed population, on a county basis, as provided in the BenMAP model; and,
- The baseline incidence rate of the health endpoint, on a county basis, as provided in the BenMAP model.

For example, in the case of a premature mortality health impact function, the BenMAP calculation can be represented, in a simplified form, as:

$$\text{Mortality Change} = (\text{Air Pollution Change}) * (\text{Air Pollution Mortality Effect Estimate}) * (\text{Mortality Incidence}) * (\text{Exposed Population})$$

- **Air Pollution Change.** The air quality change is calculated as the difference between the starting air pollution level, also called the baseline, and the air pollution level after

some change, such as that caused by a regulation. In the case of particulate matter, this is typically estimated in micrograms per meter cubed ($\mu\text{g}/\text{m}^3$). In this analysis, these concentrations were provided on a county-by-county population weighted centroid basis.

• **Mortality Effect Estimate.** The mortality effect estimate is an estimate of the percentage change in mortality due to a one unit change in ambient air pollution. Epidemiological studies provide a good source for effect estimates.⁴ In this Report, since the choice of mortality effect study has such a large influence on the valuation of the adverse health impacts avoided by applying EPA's proposed emission limits, I have presented (in Table 1) several BenMAP estimates for the mortality effect estimate, ranging from the lower end of estimates (Krewski et al., 2009), the higher end (Laden et al, 2007), and an intermediate estimate (Lepeule et. al, 2012). However, for breakdowns in adverse effects, in order to show the distribution of the effects benefits of EPA's proposed BART controls (e.g., between states, power plants, or metropolitan areas, as in Tables 2-4), I present results using only the low mortality effect estimate (Krewski et al, 2009) to simplify comparisons. This conservative (lowest benefit estimate) choice of the ACS Cohort studies to evaluate mortality benefits of EPA's proposed emissions reductions is consistent with the estimate used by EPA in the agency's prior nationwide analysis of the health benefits of Best Available Retrofit Technology determinations under the Regional Haze Regulations.⁵ This choice of a specific mortality study does not affect the *relative* comparisons between states, power plants, etc., which would remain the same irrespective of mortality effect estimate choice. It should be noted that, if I instead used the higher mortality per $\mu\text{g}/\text{m}^3$ $\text{PM}_{2.5}$ effect estimates from the other two studies in Table 1 (which are also scientifically supportable), the dollar valuation of health benefit estimates in Tables 2 thru 4 would be approximately 2.2 times higher using the Lepeul et al. study mortality effect estimate, or approximately 2.8 times higher using the Laden et al. study mortality effect estimate, across the board. However, the ratios of the *relative* impacts across categories would be unaffected by the choice of mortality

⁴ When multiple epidemiological studies are available in BenMAP for a health outcome, multi-study pooled estimates have been made, following recent EPA practice (e.g., USEPA, 2012), and as delineated in Table 1.

⁵ EPA, Regulatory Impact Analysis for Final Clean Air Visibility Rule of the Guidelines for Best Available Retrofit Technology (BART) Determinations Under the Regional Haze Regulations, EPA-452/R-05-004 (June 2005), *available at* http://www.epa.gov/oar/visibility/pdfs/bart_ria_2005_6_15.pdf.

impact study effect estimate.

- **Mortality Incidence.** The mortality incidence rate is an estimate of the average number of people that die in a given population over a given period of time, as provided in BenMAP. For example, the mortality incidence rate might be the probability that a person will die in a given year.
- **Exposed Population.** The exposed population is the number of people affected by the air pollution reductions required under EPA's BART proposal, based on Census data for each county within BenMAP.

For this work, population-weighted centroid PM_{2.5} concentration impacts from each source in each county in the fourteen study states (Alabama, Arkansas, Colorado, Illinois, Indiana, Kansas, Kentucky, Louisiana, Mississippi, Missouri, New Mexico, Oklahoma, Tennessee, and Texas) were determined by Andrew Gray for the (1) existing emissions; and (2) controlled emissions scenarios based on EPA's BART Proposal, respectively. *See* Gray, Visibility and Health Modeling, Technical Support Document to Comments of Conservation Organizations (May 5, 2017), EPA Docket No. EPA-R06-OAR-2016-0611. The arithmetic difference between the two scenario results were calculated (on a plant-by-plant and county-by-county basis) as the concentration reduction associated with the BART controls, for each plant and county in the study area modeled by Dr. Gray. As outlined in more detail by Dr. Gray in his report, CALPUFF air dispersion modeling was used to estimate long-term (three-year modeled average) fine PM concentrations at the 837 county receptors within the CALPUFF modeling domain for both the 2001-2004 emissions baseline and for the proposed BART control emission scenario. Postprocessing of the CALPUFF results was performed to sum the modeled sulfate, nitrate, and PM_{2.5} at each receptor in order to estimate the total fine PM concentration at each receptor, as contributed by each source, under both baseline and the control scenarios.] These values were entered into BenMAP to estimate the health benefits, and their dollar valuations, associated with EPA's BART controls on a county-by-county basis for each of nine electrical generating power plant sources. The results for the nine power plants proposed for BART control by the EPA were then summed on a cumulative basis (Table 1, with both numbers and valuations, by cause). Furthermore, to allow an indication of the plant-by-plant and spatial distribution of the health and economic benefits from EPA's BART proposal, the health benefit valuations (summed over all causes, as dollars) were also calculated on a state-by-state (Table 2),

plant-by-plant (Table 3), and metropolitan area-specific (Table 4) basis, providing insight into the relative health impacts by specific sources to specific areas benefitting from the pollution control FIP. The Appendix to this report provides a complete breakdown of the annual health benefits associated with the application of EPA's proposed emission limits by individual power plant and health effect.

RESULTS

Using the above-described EPA BenMAP methodology-based analysis, I conservatively estimate the total public health-based economic benefits associated with reductions in ambient PM_{2.5} concentrations as a result of applying EPA's BART control determinations to the 18 individual Texas EGUs (as displayed in Table 1 for all nine electric generating stations, and all states considered, combined) to be between roughly \$6.7 billion and nearly \$17 billion per year, overall, primarily depending on the epidemiological study used to determine the PM_{2.5} mortality impacts (*i.e.*, Krewski et al. (low), Lapeule et al. (mid), or Laden et al. (high)). These impacts reflect the range of potential mortality effects associated with the proposed EPA FIP, depending on the particular study used to estimate the effect per $\mu\text{g}/\text{m}^3$ PM_{2.5} exposure. Further breakdowns of Table 1's estimates using only the Krewski et al. study (*i.e.*, the low mortality effect estimate) to estimate total mortality impacts are provided in Tables 2 through 4 of this report: *i*) by electric generating power plant (*i.e.*, for each of the nine power plants over all areas modeled by Dr. Gray); *ii*) for all power plant generating unit impacts collectively by State of impact (*i.e.*, in Alabama, Arkansas, Colorado, Illinois, Indiana, Kansas, Kentucky, Louisiana, Mississippi, Missouri, New Mexico, Oklahoma, Tennessee, and Texas); and, *iii*) for all power plant generating unit impacts collectively by major metropolitan impact area.

As seen in Table 1, the numbers of adverse health events avoided by application of EPA's proposed SO₂ emission limits are dominated by the morbidity events, such as respiratory symptoms, restricted activity days, and work loss days. In contrast, the dollar valuation of the adverse health events are largely dominated, as would be expected, by the more severe health outcomes, including myocardial infarctions (heart attacks), chronic bronchitis, and (especially) deaths. As shown in Table 2, on a state-by-state basis, the largest health benefits go to the state in which the power plants are operating (Texas), but, because this pollution can be carried so far downwind, nearly one half of the health benefits would accrue in other (downwind) states. On a power plant basis (Table 3), it is seen that large health benefits are derived from controlling each

the nine plants EPA proposes to regulate under this FIP, with the greatest benefits being derived from controlling the Big Brown, Martin Lake, and Monticello plants. Table 4 makes clear that urban areas in Texas would receive the largest health benefits from the proposed BART emission controls at these generating stations, but that the benefits stretch long distances downwind, with still very large health benefits in cities as far away as Illinois.

Table 1. Annual Multi-State Human Health Effects and Monetary Valuations Associated With the PM_{2.5} Air Pollution Avoided by Applying EPA's Proposed BART Controls for Texas Sources

Health Endpoint	Expected Number Per Year Avoided*	Total Dollar Valuation (2010\$)**
Respiratory Hospital Admissions (Kloog et al., 2012; Zanobetti et al., 2009)	125 ^a	\$3,966,000
Cardiovascular Hospital Admissions (Bell et al., 2008; Peng et al., 2008; Peng et al., 2009; Zanobetti et al., 2009)	125 ^a	\$4,733,000
Acute Bronchitis (Dockery et al., 1996)	1317	\$633,000
Acute Myocardial Infarction, Nonfatal (Pope et al., 2006; Sullivan et al., 2005; Zanobetti et al., 2009; Zanobetti & Schwartz, 2006)	80 ^b	\$10,094,000 ^a
Emergency Room Visits (Glad et al., 2012; Mar et al., 2010; Slaughter et al., 2005)	381 ^b	\$162,000 ^a
Asthma Exacerbation Symptoms (Mar et al., 2004; Ostro et al., 2001)	24,818 ^b	\$1,434,000
Upper Respiratory Symptoms (Pope et al., 1991)	23,915	\$795,000
Lower Respiratory Symptoms (Schwartz and Neas, 2000)	16,767	\$352,000
Minor Restricted Activity Days (Ostro & Rothschild, 1989)	625,525	\$42,754,000
Work Days Lost (Ostro et al., 1987)	105,853	\$15,803,000
Chronic Bronchitis (Abbey et al., 1995)	521	\$147,152,000 ^c
Mortality, All Causes (Krewski et. al, 2009)	678	\$6,518,235,000
Mortality, All Causes (Lepeule et. al, 2012)	1541	\$14,823,929,000
Mortality, All Causes (Laden et al., 2007)	1760	\$16,921,843,000

* Rounded to nearest whole number.

** Rounded to nearest \$1000.

a Pooled effects with averaging approach, as per EPA BenMAP default setting.

b Pooled effects with random/fixed effects approach, as per EPA BenMAP default setting.

c Pooled effects with summation approach, as per EPA BenMAP default setting.

Table 2. State-By State Total Valuation of Annual Health Benefits of EPA Proposed BART Controls Applied to the Nine Power Plants At Issue* (Applying Krewski et al., 2009 for mortality)

State	Total Dollar Valuation (2010\$)**
AL	\$57,080,000
AR	\$522,356,000
CO	\$5,564,000
IL	\$46,516,000
IN	\$12,432,000
KS	\$152,556,000
KY	\$35,415,000
LA	\$492,830,000
MS	\$241,108,000
MO	\$324,832,000
NM	\$38,796,000
OK	\$771,304,000
TN	\$149,283,000
TX	\$3,896,042,000
Total	\$6,746,113,000

* Big Brown, Coletto Creek, Fayette, Harrington, JT Deely, Martin Lake, Monticello, Parish, and Welsh.

** Rounded to nearest \$1000.

Table 3. Plant-By Plant Total Valuation of Annual Health Benefits of EPA Proposed BART Controls (Applying Krewski et al., 2009 for mortality)

Electric Generating Station	Total Dollar Valuation (2010\$)*
Big Brown	\$1,617,952,000
Coletto Creek	\$261,901,000
Fayette	\$495,331,000
Harrington	\$153,627,000
JT Deely	\$508,409,021
Martin Lake	\$1,135,234,000
Monticello	\$1,553,080,000
Parish	\$816,736,000
Welsh	\$203,842,000
Total	\$6,746,113,000

* Rounded to nearest \$1000.

Table 4. Total Valuation of Annual Health Benefits of EPA Proposed BART Controls for Selected Metropolitan Areas (Applying Krewski et al., 2009 for mortality)

City (Counties)	Total Dollar Valuation All 9 Plants (2010\$)*
Austin, TX (Hayes, Travis, Williamson)	\$182,849,000
Dallas, TX (Colin, Dallas, Ellis, Rockwall)	\$623,296,000
Ft. Worth, TX (Johnson, Tarrant)	\$369,004,000
Houston, TX (Brazoria, Chambers, Fort Bend, Galveston, Harris)	\$606,467,000
San Antonio, TX (Bexar, Comal, Guadalupe)	\$325,461,000
Little Rock, AR (Lonoke, Pulaski, Saline)	\$90,863,000
Kansas City, KS (Johnson, Wyandotte, Cass, Clay, Jackson, Platte)	\$6,670,000
New Orleans, LA (Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John the Baptist)	\$56,435,000
Jackson, MS (Hinds, Madison, Rankin)	\$39,942,000
Oklahoma City, OK (Canadian, Cleveland, Logan, Oklahoma)	\$185,587,000
Tulsa, OK (Creek, Osage, Tulsa, Wagoner)	\$156,516,000
Nashville, TN (Davidson, Fsumner, Williamson, Wilson)	\$2,911,000

* Rounded to nearest \$1000.

In addition to reflecting a conservative (i.e., low) mortality effects estimate, these overall health impact counts and their dollar valuations are conservative estimates of the health benefits after the application of the proposed BART controls at the affected power plant units for a number of reasons, including: (a) additional health impacts not modeled in this analysis attributable to co-reductions in other pollutants (*e.g.*, gaseous SO₂) are not included here; (b) consideration of health impacts only for the ages of the exposed populations that were considered in the epidemiological studies on which these analyses were based; (c) there are either no health impact studies or no dollar valuation available for many health outcomes thought to be adversely affected by air pollution, such as effects of air pollution on birth outcomes; and (d) in Tables 2-4 we have applied the low estimate of the mortality benefits (whereas applying the other two studies noted would roughly double or triple the estimates in Tables 2-4, respectively). Thus, while all air pollution control costs associated with application of EPA's proposed BART controls can be estimated, these estimates of the health benefits and their monetary valuations are only available for a subset of likely health impacts from air pollution. This, in addition to prior discussion of the likely higher toxicity of particles from coal-fired power plants, means that my analysis is very conservative, and likely underestimates the health and monetary benefits of applying EPA's BART emission limits to the affected Texas power plant units.

CONCLUSIONS

Even applying conservative estimates and assumptions, the health benefits and valuations derived from the application of EPA's BART control determination to the 9 Texas electric generating power plants at issue are substantial. Moreover, these benefits and their valuations accrue each and every year those controls are operational. Accordingly, ten years from the compliance date, the health benefits and valuations of proposed controls will be roughly ten times the values provided in Tables 1 through 4, before adjustment for a discount rate and future affected population growth, as appropriate. Similarly, these benefits and their valuations are lost (not accrued) each and every year that application of the EPA's BART controls are delayed. Thus, even a delay of just a few months carries the risk of substantial, and irreparable, harm to public health. As demonstrated above, those public health impacts have an associated and quantifiable adverse economic impact. Thus, it is reasonable to conclude that any delay implementing EPA's Regional Haze BART controls for Texas will only exacerbate the substantial, and irreparable, harms to public health that have already been incurred to date by the operation of these electric generating units.

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DATED: May 4, 2017, at Chester, New York.

A handwritten signature in black ink, appearing to read "G. D. Thurston, S.D.", with a stylized flourish at the end.

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Curriculum Vitae

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Education

Degree	Field	Institution
Diploma	Academic	Barrington High School, RI
Sc.B. (Honors)	Environmental Engineering	Brown University
A.B.	Environmental Studies	Brown University
S.M.	Environmental Health Sciences	Harvard Univ. Schl. of Public Health
Sc.D.	Environmental Health Sciences	Harvard Univ. Schl. of Public Health

Postdoctoral Training

Specialty	Mentor	Place of Training
Environ. Epidemiology	Dr. H. Ozkaynak	Harvard Univ., Kennedy Schl. of Gov., Camb., MA

Internships and Residencies N/A

Clinical and Research Fellowships N/A

Licensure and Certification: Environmental Benefits Mapping and Analysis Program - Community Edition (BenMAP-CE) Training Certification (August 2014).

Academic Appointments

1987-1993	Assistant Professor, Dept. of Environmental Medicine, New York University School of Medicine, New York City, NY.
1993-2006	Associate Professor (Tenured), Dept. of Environmental Medicine, New York University School of Medicine, New York City, NY.
2007-present	Professor (Tenured), Dept. of Environmental Medicine, New York University School of Medicine, New York City, NY.
2007-present	Affiliated Faculty, Environmental Studies Program, College of Arts and Sciences, New York University, New York City, NY.
2012-present	Affiliated Faculty, Marron Institute on Cities and the Urban Environment, New York University, New York City, NY
2012-present	Faculty Mentoring Champion, Dept. of Environmental Medicine, New York University School of Medicine, New York City, NY.

Hospital Appointments: N/A

Other Professional Positions and Visiting Appointments:

Oak Ridge Institute for Science and Education (ORISE) Fellow (2008-2010)

Major Administrative Responsibilities

<i>Year</i>	<i>Title, Place of Responsibility</i>
1995-2004	Director, Community Outreach and Environmental Education Program, NYU-NIEHS Center of Excellence, Nelson Inst. of Environ. Med., NYU School of Medicine, Tuxedo, NY
2002-2012	Deputy Director, NYU Particulate Matter Research Center, Nelson Inst. of Environmental Medicine, NYU School of Medicine, Tuxedo, NY
2007-2008	Director, Environmental Epidemiology Core, NYU-NIEHS Center of Excellence, Department of Environmental Medicine, Tuxedo, NY
2010-2015	Co-Leader, Metals Research Focus Group, NYU-NIEHS Center of Excellence, Department of Environmental Medicine, Tuxedo, NY.
2012-2016	Chair, Appointments and Promotions Committee, Department of Environmental Medicine, NYU School of Medicine.
2014-2016	Co-Chair, Environmental Health Research Affinity Group, NYU Global Institute of Public Health (GIPH), New York University, Washington Square.
2012-present	Director, Program in Exposure Assessment and Human Health Effects, Department of Environmental Medicine, NYU School of Medicine.

Teaching Experience

<i>Year</i>	<i>Name of course</i>		<i>Type of Teaching</i>
1984-1994	Air Poll. Transport Modeling	(G48.2048)	Course Director
2006-present	Climate, Air Pollution, & Health	(G48.1010)	Course Director
1986-present	Aerosol Science	(G48.2033)	Course Director
1984-2010	Environmental Contamination	(G48.2305)	Lecturer
1984-present	Environ. Hygiene Measurements	(G48.2035)	Lecturer/Lab
1990-1998	Environmental Toxicology	(G48.1006)	Lecturer
1993-1995	Environmental Epidemiology I	(G48.2039)	Lecturer
2001-2003	NYU Summer Institute, Wagner School		Lecturer
2006-present	Environmental Epidemiology I	(G48.2039)	Lecturer
2006-present	Science, Health & Envir. Journalism	(G54.1017.0)	Lecturer
2009-2011	Global Environmental Health	(U10.2153.1)	Course Director
2009-2012	Global Issues in Environ. Health	(G48.1011)	Course Director
2009-present	Earth Systems Science (undergrad)	(V36.0200)	Lecturer
2011-present	Principles of Environmental Health	(G48.1004)	Course Director
2013-present	Environ. Hygiene Measurements	(G48.2035)	Course Co-Director

Awards and Honors

November 1999	Orange Environment Citizens Action Group, OE Award for Excellence in Translating Science to the Public
December 2000	NYU School of Medicine Dean's Research Incentive Award
October 2012	Recipient of the "Haagen Smit Prize" for Best Paper, <u>Atmospheric Environment</u> . http://geo.arc.nasa.gov/sgg/singh/winners12.html
March 2013	Recipient of the "Best Paper of the Year – Science" Award from <u>ES&T</u> http://pubs.acs.org/doi/full/10.1021/es400924t

Major Committee Assignments

New York University Committees

2007-present:	University Sustainability Task Force
2010-2012:	University Faculty Senate Alternate
2012-present:	University Faculty Senator

NYU School of Medicine Departmental Committees

1992-1998:	Sterling Forest Library Committee, Member, NYU SOM Dept of Environ. Medicine
1991-1994	Health & Safety Committee, Member, NYU SOM Dept. of Environ.. Medicine
1992-2004	Community Outreach and Education Comm., Chairman, NYSOM Dept. of Environ. Med.
1999-2004	Dept. Chairman's Internal Advisory Comm., Member, NYUSOM Dept. of Environ. Med.
2005-present	Dept. Academic Steering Committee, Member, NYUSOM Dept. of Environ. Medicine
2007-2012	Dept. Appointments & Promotions Comm., Member, NYUSOM, Dept. of Environ. Medicine
2012-present	Dept. Appointments & Promotions Comm., Chair, NYUSOM, Dept. of Environ. Medicine

Advisory Committees

Regional

1983-1984	Massachusetts Acid Rain Advisory Board, Member, Mass. Dept. of Env. Protection
1984-1986	Committee on Environ. And Occup. Health. , NY State American Lung Association
1991-1996	Air Management Advisory Comm., Member of Health Effects Subcom., NY State DEC
1995-1999	Engineering Advisory Board, Member, Tuxedo, NY
1997-1998	Advisory Committee to the Mayor on the Port of Newburgh, Member, Newburgh, NY
1996-1999	CUES Asthma Working Group, Member, New York Academy of Medicine
2008-2010	New York City Community Air Study (NYCCAS) Advisory Panel

National

1995-1999	Comm. on Health Effects of Waste Incineration, Member, National Academy of Sciences
1995-1999	National Air Conservation Commission, Member, American Lung Association
2000-2004	National Action Panel on Environment, Member, American Lung Association
2005-present	National Clean Air Committee, Member, American Lung Association
2007-2010	U.S. EPA Clean Air Science Advisory Committee (CASAC) for SO _x and NO _x
Mar. 2012	EPA Panelist for "Kickoff Workshop to Inform EPA's Review of the Primary NO ₂ NAAQS"

International

1996-1997	Sulfur in Gasoline Health and Environment Panel, Chairperson, Health Canada
Sept. 2007	Illness Cost of Air Pollution Expert Committee, Canadian Medical Association
2008-2012	Global Burden of Disease (GBD), Committee on the Human Health Effects of Outdoor Air Pollution, World Health Organization (WHO)

Grant Review Committees (National)

March 1989	EPA Air Chemistry and Physics Extramural Grants Review Panel (<i>ad hoc member</i>)
Oct. 1989	NIEHS P30 Center Special Review Panel (<i>ad hoc member</i>)
July 1992	NIH R01 Epidemiology & Disease Control Study Section (<i>ad hoc member</i>)
Nov. 1992	NIEHS P20 Center Development Grant Special Study Section, (<i>ad hoc member</i>)
June 1996	EPA Special Review Panel of the Health Effects Institute (HEI) (<i>ad hoc member</i>)
March 1997	EPA Office of Res. and Development External Grant Review Panel (<i>ad hoc member</i>)
April 1997	NIEHS Community-Based Participatory Res. R01 Special Study Sect. (<i>ad hoc member</i>)
July 1997	EPA National Environ. Research Lab Intramural Research Review Panel (<i>ad hoc member</i>)
June 1998	EPA Office of Res. and Development External Grant Review Panel (<i>ad hoc member</i>)
July 1998	EPA Climate Policy and Programs Division Grant Application Review (<i>ad hoc member</i>)
Oct. 1998	Mickey Leland Center for Air Toxics Grant Review Panel (<i>ad hoc member</i>)
April 2000	NIEHS P30 Center Special Review Panel (<i>ad hoc member</i>)
July 2001	NIEHS Community-Based Participatory Res. R01 Special Study Sect. (<i>ad hoc member</i>)
Dec. 2001	NIEHS Program Project P01 Site Visit Review Panel (<i>ad hoc member</i>)
April 2003	NIH R21 Fogarty Health, Env. and Economic Development Study Sect. (<i>ad hoc member</i>)
Nov. 2003	U.S. EPA STAR Grant Panel (Epidemiologic Research on Health Effects of Long-Term Exposure to Ambient Particulate Matter and Other Air Pollutants) (<i>member</i>)
October 2004	NIEHS Program Project P01 Review Panel (<i>ad hoc member</i>)
June 2005	NIH Special Emphasis Panel (ZRG1 HOP Q 90 S) (<i>ad hoc member</i>)
Nov. 2005	NIH Infectious Disease, Reproductive Health, Asthma/Allergy, and Pulmonary (IRAP) Conditions Study Section Review Panel (<i>ad hoc member</i>)

Feb. 2006	NIH Infectious Disease, Reproductive Health, Asthma/Allergy, and Pulmonary (IRAP) Conditions Study Section Review Panel (<i>ad hoc member</i>)
June 2006	NIH Infectious Disease, Reproductive Health, Asthma/Allergy, and Pulmonary (IRAP) Conditions Study Section Review Panel (<i>ad hoc member</i>)
Dec. 2006	NIEHS Special Emphasis Panel on Genetics, Air Pollution, and Respiratory Effects (ZES1 TN-E FG P) (<i>member</i>)
Nov. 2007	NIH Special Emphasis Panel on Community Participation in Research (ZRG1 HOP-S) (<i>member</i>)
June 2009	NIH Study Section Review Panel on Challenge Grants in Health & Science Research
March 2011	U.S. EPA Science to Achieve Results (STAR) Graduate Fellowship Review Panel – Clean Air Panel (<i>chair</i>)
Sept. 2011	NIH Special Epidemiology Study Section (ZRG1 PSE K 02 M) (<i>member</i>)
Oct. 2012	NIH Cardiac and Sleep Epidemiology (CASE) Study Section (<i>ad hoc member</i>)
June 2013	NIH Special NHLBI Dataset Study Section (ZRG1 PSEQ 56) (<i>member</i>)
July 2013	NIH “Career Awards” Study Section (ZES1 LWJ-D, K9) (<i>member</i>)
Sept. 2013-17	Appointed Permanent Member, NIH Cancer, Heart, and Sleep Epidemiology Study Section (CHSE) Study Section
Nov. 2016	NIEHS R13 Study Section (<i>member</i>)

Memberships, Offices, And Committee Assignments in Professional Societies

<i>Year</i>	<i>Society/Committees</i>
1980-1996	Air and Waste Management Association (Comm. on Health Effects and Exposure,)
1992-Present	American Thoracic Society (ATS): Environmental and Occup. Health (EOH) Assembly, 1995-1999, 2012-present: ATS EOH Long Range Planning Committee; 1993-1994, 2002-2004: ATS Program Committee 2006-2007 Chairman of the ATS-EOH Nominating Committee 2010-present: ATS Environmental Health Policy Committee, member 2012-2014: ATS Environmental Health Policy Committee, Vice-Chairman 2015-2017: ATS Environmental Health Policy Committee, Chairman
1990-present	International Society of Exposure Science
1992-present	International Society for Environmental Epidemiology (Annual Meeting Program Committee: 1998, 2000, 2003, 2004, 2006) (ISEE Conference Planning Committee: 2006-present)
2007-2009	New York Academy of Sciences (membership given in appreciation for a 1/23/07 NYAS forum presentation)
2017-present	American Public Health Association (APHA)

Editorial Positions

Journal Board Membership

<i>Year</i>	<i>Name of Board</i>
1993-2008	International Society of Exposure Analysis (J. of Exp. Anal. and Environ. Epid.)

Ad Hoc Manuscript Reviewer

<i>Years</i>	<i>Journal</i>
1996-1998	American Journal of Epidemiology
1994	Archives of Environmental Health
1995-present	Atmospheric Environment
1995-present	Environmental Health Perspectives
1994-present	Environmental Research
2004-present	Environmental Science and Technology
2011-present	Epidemiology
1993-present	Journal of Exposure Analysis and Environmental Epidemiology

1994-present	Journal of the Air and Waste Management Association
1996-present	Journal of the American Medical Association
1997-present	Journal of Occupational and Environmental Medicine
1997-present	Journal of Respiratory and Critical Care Medicine
2006-present	Thorax

Scientific Report Reviewer

August, 1986	Reviewer for the National Academy of Sciences, Board on Environmental Studies and Toxicology report "The Airliner Cabin Environment: Air Quality and Safety"
October, 2002	Reviewer for the NAS, Board on Environmental Studies and Toxicology report "Estimating the Public Health Benefits of Proposed Air Pollution Regulations"

Mentoring of Graduate Students, Residents, Post-Doctoral Fellows in Research

Under direct supervision:

<i>Student Name</i>	<i>Type of Position</i>	<i>Time Period</i>	<i>Present Position</i>
Mark Ostapczuk	Masters	1984-1986	Industrial Hyg., Barr Labs, Pomona, NJ
Kazuhiko Ito	Masters/Doctoral	1984-1990	Scientist, NYC Dept. of Health, NYC, NY
Peter Jaques	Masters/Doctoral	1988-1998	Assoc. Prof., Clarkson Univ., Potsdam, NY
R. Charon Gwynn	Masters/Doctoral	1992-1999	Epidemiologist, Columbia Univ., NY
Ramona Lall	Masters/Doctoral	2000-2007	Research Sci. IV, NYC Dept. of Health, NY
Ariel Spira-Cohen	Masters/Doctoral	2003-2009	Research Sci. III, NYC Dept. of Health, NY
Kevin Cromar	Masters/Doctoral	2008-2012	Assistant Professor, NYU School Of Medicine
Lital Yinon	Doctoral	2011-present	Doctoral Candidate, NYU School of Medicine
Chris Lim	Doctoral	2012-present	Doctoral Candidate, NYU School of Medicine

In advisory function (thesis committee):

<i>Student Name</i>	<i>Advisory Role</i>	<i>Time Period</i>	<i>Student's Supervisor</i>
Shao-Keng Liang	Doctoral Committee member	1990-1994	Dr. J. Waldman, UMDNJ, Rutgers
Jerry Formisano	Doctoral Committee member	1997-2000	Dr. M. Lippmann, NYU SOM
Yair Hazi	Doctoral Committee member	1993-2001	Dr. B. Cohen, NYU SOM
Samantha Deleon	Doctoral Committee member	1997-2003	Dr. K Ito, NYU SOM
Chun Yi Wu	Doctoral Committee member	2000-2004	Dr. L.C. Chen, NYU SOM
Carlos Restrepo	Doctoral Committee member	2002-2004	Dr. R. Zimmerman, Wagner, NYU
Shaou-I Hsu	Doctoral Committee member	2000-2009	Dr. M. Lippmann, NYU-SOM
Steven Schauer	Doctoral Committee member	2007-2009	Dr. B. Cohen, NYU-SOM
Christine Ekenga	Doctoral Committee Chair	2009-2011	Dr. G. Friedman-Jimenez, NYU-SOM
Rebecca Gluskin	Doctoral Committee Chair	2009-2012	Dr. Kazuhiko Ito, NYU SOM
Jiang Zhou	Doctoral Committee Chair	2008-2012	Dr. Kazuhiko Ito, NYU SOM
Eric Saunders	Doctoral Committee Chair	2012-present	Dr. Terry Gordon, NYU SOM

Teaching Awards Received

N/A

Major Research Interests

- 1) Air Pollution Epidemiology: Real-world air pollution exposures and human health effects in the general population and study cohorts of suspected susceptible individuals (e.g., children).
- 2) Aerosol Science: Ambient particulate matter aerosol exposures, including designing and implementing air monitoring equipment to collect human exposures to air pollution.

3) Environmental Exposure Assessment: Methods to assess human exposures and health effects from air pollution, especially the development of source apportionment models to separate human effects on the basis of pollution source. Design of epidemiological models/methods that better incorporate potential air pollution confounders/effect modifiers (e.g. weather and genetic influences).

Grants Received

Prior:

Agency	Title	Grant #	Period	Total Direct Costs	Role	% Effort
USEPA	Effects of Acute Exposure to Summertime Haze Episodes on the Health of Humans	R811563	05/01/84-09/30/87	\$538,586	Co-I	50%
NIH	Acid Aerosol Exposure: Effect on Respiratory Morbidity	R01 ES04612	09/25/87-08/31/92	\$846,966	PI	30%
USEPA	Acid Aerosol Chamber Experiments	OD2524AEX	7/2/90-7/31/90	\$5,810	PI	9%
USEPA	Analysis of Acid Aerosol Experiments	00422248NAEX	8/1/90-9/30/90	\$3,364	PI	5%
USEPA	Air Pollutants and Human Health	R814023	05/18/87-05/17/91	\$690,921	CO-I	50%
USEPA	Development and Field Applic. of an Automated Sequential Weekly Average H+ Sampler	Subcontract to EPA Grant CR816740-03	6/1/92-2/28/93	\$13,156.	PI	15%
NIH	Acid Aerosol Exposure: Effect on Respiratory Morbidity	R01 ES04612	09/01/92-08/31/95	\$377,298.	PI	30%
HEI	Retrospective Characterization of Ozone Exposures	Health Effects Institute Grant	11/1/93-10/31/94	\$98,238	CO-I	10%
NIH	Temperature and Air Pollution Effects on Human Mortality	R01 ES05711	6/1/92-5/31/95	\$371,993	PI	30%
NYUSOM	Environmental Effects on Human Mortality and Morbidity	Bridge Grant	9/1/95-8/31/96	\$48,400	PI	-
USEPA	Effects of Exposure to Ambient Air Pollutants on Human Health	R808325	10/1/91-09/30/96	\$870,565	CO-I	50%
USEPA	Investigation of Acid Aerosol Exposures in Metropolitan Settings	Subcontract to Grant No. CR822050	11/1/93-10/31/96	\$200,499	PI	10%
USEPA	An Evaluation of Potential Confounders in PM10 Mortality Associations	R825271	11/25/96-11/24/01	\$219,410	CO-I	10%
USEPA	Acidic PM and Daily Human Mortality in Three U.S. Cities	#R825264	11/25/96-11/24/00	\$232,671	PI	15%
NYS-ERDA	Environmental Monitoring, Evaluation, and Protection Program	6084-ERTER-ES00	12/01/99-11/30/02	\$341,926	PI	20%
HEI	Children's Asthma Incidence and Personal Exposures to Diesel Particles and Traffic in NYC		01/01/02-12/31/02	\$154,800	PI	30%
USEPA	Influence of Alternate	R827358	03/01/99-	\$183,089	PI	30%

	Indicators of Exposure to PM and PM Components in Statistical Associations with Mortality and Hospital Admissions		02/28/03			
NIH	NIEHS Center Supplement: Health Issues Related to the World Trade Center Disaster, Outreach Project	ES00260-S1	04/01/02-03/31/03	Total=\$ 936,487 Outreach=\$172,031	Co-PI PI	10% 15%
NIH	Effects of Ambient Air Pollutants on Annual Mortality	RO1 ES09560	9/15/99-8/31/03	\$471,408	PI	30%
USEPA	Particle Exposures of High-Risk Sub Populations	R827164	10/01/98-09/30/03	\$1,327,240	Co-I	10%
USEPA	A Source Oriented Evaluation of the Combined Effects of Fine Particles and Co-pollutants	R827997	02/01/00-01/31/04	\$291,407	Co-I	15%
NIH	NIEHS Center Grant: Outreach and Education Program	ES00260	04/01/00-03/31/05	Total=\$5,000,000 Outreach=\$240,365	Co-I PI	5% 5%
USEPA	EPA PM Health Effects Center Project 6: "A Prospective Study of Asthma Susceptibility to PM Epidemiologic Investigations of Key PM Components and Biomarkers of Effects & Community Outreach Project	R827351	06/01/99-05/31/05	Total=\$6,000,000 Project 6=\$134,923 Outreach=\$77,779	Co-PI PI PI	15% 10% 10%
NIH	Genetic/Epigenetic Susceptibility to Superfund Chemicals: Outreach Project	ES010344	05/08/00-03/31/06	\$156,812	Co-I	5%
USEPA	Env. Issues in the South Bronx. Thurston Project: S. Bronx Backpack Study	X1982152	08/01/00-09/30/06	Total=\$921,922 Project=\$307,131	CO-I PI	5% 15%
NIH	NIEHS Center Supplement: Health Issues Related to the World Trade Center Disaster, Source Attribution (Project 4) & Community Outreach	ES00260-S2	04/01/02-03/31/04	Total=\$660,000 Project 4=\$69,999 Outreach=\$172,031	Co-PI PI PI	10% 10% 15%
USEPA	The role of traffic-related pollution in PM health effects associations among inner-city children with asthma	16511	09/01/06-08/31/09	\$51,516	PI	-
California Air Resources Board (CARB)	Spatio-temporal Analysis of Air Pollution and Mortality in California Based Upon the ACS Cohort (Thurston: Consulting Project)		06/01/07-5/31/10	Project=\$13,634	Co-I	4%
USEPA	Real time modeling of weather, air pollution, health outcome indicators in NYC.	RD-83362301-0	12/07-11/10	\$130,496	Co-I	5%
NIH	Fine Particles and Out-of-Hospital Cardiac Arrest in New York City	R01ES014387-01A2	04/09-12/11	\$200,000	Co-I	10%

Health Effects Institute (HEI)	Characteristics of PM Associated with Health Effects. <i>Thurston Project</i> : “Study Of PM Components and U.S. Human Mortality In The ACS Cohort.	4750	01/01/07-3/31/11	Total=\$3,247,567 Project=\$355,920	Co-I PI	5% 20%
NT State DOT	Mobile Source Air Toxics Mitigation Measures		09/01/10 06/31/13	SubProject=\$89,062	Co-I	10%
Robert Wood Johnson Fndn.	The Effect of Peak-Shaving Regulations on the Activity, Toxic Emissions, and Health Impacts of Local Power Plants	Public Health Law Research	1/12-7/13	\$151,500	Co-I	10%
NIH	Dietary Influence on Mortality from Air Pollution Exposure in the NIH-AARP Cohort (R21)	1R21ES021194-01	7/12-6/15	\$150,000	MPI (Contact PI)	8%

Current:

Agency	Title	Grant #	Period	Total Direct Costs	Role	% Effort
NIH	Long-term Air Pollution Exposure and Mortality in the NIH-AARP Cohort.	R01ES019584-01A1	1/01/12-6/30/18	\$1,221,253	MPI (Contact PI)	20%
The Public Health Research Institute of Abu Dhabi	Development of a Public Health Research Institute in Abu Dhabi. <i>Thurston Project</i> : “Air Pollution in Abu Dhabi”.		3/2012-2/2018	\$9,993,960	Co-I	5%

Patents

None

Boards and Community Organizations

1990-1995 St. Mary’s Episcopal Church, Tuxedo, NY, Vestry member
1992-2008 Monroe-Woodbury Soccer Club, Coach (Board Member: 1999-2000)
1994-1999 Orange County Citizen’s Foundation, Member
1999-2009 Y2CARE Monroe-Woodbury, NY School District Residents Action Group, Founder
2005-present St. Mary’s Episcopal Church, Tuxedo, NY, Community Outreach Committee, Member
2006-present EPISCOBUILD-Newburgh, NY Habitat for Humanity Advisory Board, Member
2012-present St. Mary’s Episcopal Church, Tuxedo, NY, Vestry member

Military Service

None

International Scientific Meetings Organized

- May 28-30, 2003 “Workshop on the Source Apportionment of PM Health Effects.” U.S. EPA PM Centers, Harriman, NY.
- Aug. 1-4, 2004 “Sixteenth Conference of the International Society for Environmental Epidemiology,” Kimmel Conference Center, Washington Square, New York University, New York City, NY.

Scientific Forums for the Public Organized

- June 2001 “Science and Community Interaction Forum on the Environment.” Held at Hostos Community College, Bronx, , New York City, NY.
- October 2001 “Forum on Environmental Health Issues Related to the World Trade Center Disaster.” Held at NYU Law School, Washington Square, New York City, NY.
- October 2002 “2nd Annual Forum on the Environmental Health Issues Related to the World Trade Center Disaster.” Held at Manhattan Borough Community College, New York City, NY.
- October 2003 “3rd Annual Forum on the Environmental Health Issues Related to the World Trade Center Disaster.” Held at NYU Lower Manhattan Campus, New York City, NY.

Invited U.S. House and Senate Congressional Testimony

- Feb. 5, 1997 “Human Health Effects of Ambient Ozone Exposures” Statement before the Committee on Environment and Public Works, Subcommittee On Clean Air, Wetlands, Private Property, And Nuclear Safety, U.S. Senate, Washington, DC.
<http://epw.senate.gov/105th/thurston.htm>
- April 16, 1997 “Human Health Effects of Ambient Ozone and Particulate Matter Exposures.” Statement before the Government Reform and Oversight Committee of the U.S. House of Representatives, Washington, D.C.
- May 8, 1997 “Human Health Effects of Ambient Ozone and Particulate Matter Exposures.” Statement before the Subcommittee on Health and Environment, Committee on Commerce of U.S. House of Representatives, Washington, D.C.
- July 29, 1997, “The Human Health Effects of Ambient Ozone And Particulate Matter Air Pollution.” Statement before the Subcommittee on Commercial and Administrative Law of the Judiciary Committee of the U.S. House of Representatives, Washington, D.C.
<http://judiciary.house.gov/legacy/commercial.htm>
- October 22, 1997 “Ozone and Particulate Matter Air Pollution Health Effects.” Statement before the U.S. Senate Committee on Environment and Public Works Subcommittee on Clean Air, Wetlands, Private Property, and Nuclear Safety. Washington, DC.
<http://epw.senate.gov/105th/thursto2.htm>
- July 15, 1999: “The Mandated Release of Government-Funded Research Data.” Statement before the Committee On Government Reform, Subcommittee on Government Management, Information And Technology, U.S. House of Representatives
- July 26, 2001 “The Human Health Effects Of Air Pollution From Utility Power Plants.” Statement before the Committee on Environment and Public Works, U.S. Senate, Washington, D.C.
<http://www.c-spanvideo.org/program/PlantE>
- Feb 11, 2002: “The Air Pollution Effects of The World Trade Center Disaster.” Statement before the Committee On Environment And Public Works, Subcommittee On Clean Air, Wetlands, And Climate Change. United States Senate, New York, NY.
<http://www.c-spanvideo.org/program/Qualitya>

- March 5, 2002 “The Use of the Nationwide Registries to Assess Environmental Health Effects.” Statement before the Committee On Health, Education, Labor, And Pensions, Subcommittee On Public Health, U.S. Senate, Washington, DC.
- Sept. 3, 2002 “The Clean Air Act and The Human Health Effects of Air Pollution from Utility Power Plants.” Statement before the U.S. Senate Committee on Health, Education, Labor, and Pensions, Subcommittee on Public Health, Washington, D.C. <http://www.c-spanvideo.org/program/AirStand>
- April 1, 2004 “The Human Health Benefits Of Meeting the Ambient Ozone And Particulate Matter Air Quality Standards.” Statement before the Committee on Environment and Public Works, Subcommittee on Clean Air, Climate Change, and Nuclear Safety, U.S. Senate, Washington, D.C.
<http://epw.senate.gov/epwmultimedia/epw040104.ram>
- July 19, 2006 “The Science And Risk Assessment Of Particulate Matter (PM) Air Pollution Health Effects.” Statement before the Committee on Environment and Public Works, U.S. Senate, Washington, D.C.
<http://epw.senate.gov/hearingstatements.cfm?id=258766>
- May 7, 2008 “Science And Environmental Regulatory Decisions.” Statement before the Committee On Environment And Public Works of The U.S. Senate, Subcommittee on Public Sector Solutions to Global Warming, Oversight, and Children’s Health Protection, U.S. Senate, Washington, D.C.
<http://www.c-spanvideo.org/program/RegulatoryD>
<http://epw.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&HearingID=a1954f70-802a-23ad-4192-fc2995dda7f4>
- October 4, 2011 “The Science of Air Pollution Health Effects and the Role of CASAC in EPA Standard Setting” Statement before the Subcommittee on Energy and the Environment, Committee on Science, Space and Technology, U.S. House Of Representatives, Washington, DC.
<http://science.house.gov/hearing/energy-and-environment-subcommittee---hearing-quality-science-quality-air>

Other Invited Presentations

Regional Presentations

- April 21, 1993 “Summertime Smog and Hospital Admissions for Respiratory Illness”, Environmental and Occupational Health Sciences Institute Seminar Series Lecture, UMDNJ-Robert Wood Johnson Medical School, Piscataway, NJ.
- Dec .14, 1995 “Health Effects of Acidic Aerosols”, NY State Dept. of Health, Wadsworth Center Seminar, Albany, NY
- Jan. 18, 1996 “Outdoor Air Pollution and Asthma in Children” American Lung Association Press Briefing, New York, NY.
- June 1, 1996 “Asthma and Urban Air Pollution”, WHEACT, Harlem Hospital, New York, NY.
- July 17, 1996 “Asthma and Outdoor Air Pollution”, Making the Connection: Urban Air Toxics & Public Health. Northeast States for Coordinated Air Use Management (NESCAUM), Roxbury, MA
- Feb. 11, 1997 “Outdoor Air Pollution and Asthma”, Bellevue Hospital Asthma Clinic *Grand Rounds*. New York City, NY.
- Feb. 26, 1998 “Scientific Research for Ozone and Fine Particulate Standards”, Pace University School of Law, White Plains, NY
- Nov. 30, 1998 “Outdoor Air Pollution and Asthma”, Center for Urban and Environmental Studies (CUES), NY Academy of Medicine,, New York, NY
- Feb. 22, 1999 “Asthma and Air Pollution”, Cornell University, Ithaca, NY

April 28, 2001 "Asthma and Air Pollution in New York City", NYC Council Environmental Candidate School, NY League of Conservation Voters, New York, NY.

Nov. 1, 2001 "Air Quality and Environmental Impacts Due to the World Trade Center Disaster", Testimony before the Comm. on Environ. Protection, NYC Council, New York, NY.

Nov. 13, 2001 "WTC Pollution Impacts in Lower Manhattan", Stuyvesant High School Parents Association General Meeting, Stuyvesant High School, New York, NY

Feb. 28, 2002 "Lung Cancer Effects of Long-Term Exposure to Ambient Fine Particulate Matter", Mailman School of Public Health, Columbia University, New York, NY.

April 5, 2002 "Air Pollution Impacts of the WTC Disaster", 23rd Annual Scientific Conference of the NY/NJ Education and Research Center: "Worker Health and Safety: Lessons Learned in the Aftermath of Sept. 11, 2001," Mt. Sinai School of Medicine, NYC, NY

April 21, 2002 "Adverse Health Effects of Power Plant Air Pollution on Children" Earth Day 2002, 14th Street Y, New York City, NY.

May 23, 2002 "Human Health Effects of Power Plant Pollution", Rockland County Conservation Association, Suffern, NY

May 31, 2002 "Environmental Health Impacts of the World Trade Center Disaster", University of Rochester Medical School, Rochester, NY.

Sept. 19, 2002 "Community Air Pollution Related to the World Trade Center Disaster". NYC Council Forum: The Environmental Health Consequences of 9/11: Where Do We Stand One Year Later? Borough of Manhattan Community College, New York City, NY.

Oct. 3, 2002 "Community Exposures to Particulate Matter Air Pollution from the World Trade Center Disaster", Mount Sinai School of Medicine *Grand Rounds*, New York City, NY.

April 11, 2003 "Environmental Impacts of the World Trade Center Disaster", NIEHS Public Interest Liaison Group, New York City, NY.

April 21, 2003 "Asthma and Air Pollution", Airborne Threats to Human Health, NIEHS Town Hall Meeting, Syracuse, NY.

May 7, 2003 "Asthma and Air Pollution in NY City" Environmental Candidate School for New York City Council Candidates, Wagner School, NYU, New York City, NY.

July 21, 2003 "Health Effects of Particulate Matter Air Pollution", Ozone Transport Commission, Philadelphia, PA.

Nov. 18, 2004 "Ambient Air Pollution Particulate Matter (PM): Sources and Health Impacts". U.S. Environmental Protection Agency, Region 2, New York City, NY.

Feb. 17, 2005 "Community Air Pollution Aspects Of The Demolition Of 9-11 Contaminated Buildings". Testimony before the Committee On Lower Manhattan Redevelopment, New York City Council, New York City, NY.

Oct. 19, 2005 Air Pollution Health Effects: Consideration of Mixtures. Fall Meeting of the Mid-Atlantic Chapter of the Society of Toxicology (MASOT), East Brunswick, NJ.

Dec. 7, 2006 Asthma and Air Pollution Effects in the South Bronx. New York City Child Health Forum, The Children's health Fund, Harlem, NYC, NY.

Jan. 18, 2007 Air Pollution Effects in New York City. NYU Environmental Sciences Seminar Lecture, Washington Square, NYC, NY.

Jan. 23, 2007 The South Bronx Backpack Study: Asthma and Air Pollution in NYC. Presented at the forum "High Asthma Rates in the Bronx: What Science Now Knows and Needs to Learn." New York Academy of Sciences, 7 World Trade Center, NYC, NY.

Oct. 2, 2009 "Diesel Air Pollution and Asthma in New York City". Brown Superfund Research Program, Brown University, Providence, RI.

June 19, 2012 "The Backpack Study of Asthma and Diesel Air Pollution in the South Bronx". Region 1 U.S. EPA, Citizen Science Workshop, New York City, NY.

National Presentations

- Oct. 20, 1987. NIEHS Symposium on the Health Effects of Acid Aerosols: “Re-examination of London, England, Mortality in Relation to Exposure to Acidic Aerosols During 1963-1972 Winters” RTP, NC.
- Aug. 13, 1991 “Kuwait Mortality Risks from SO₂ and Particles: Insights from the London Fogs” The Kuwait Oil Fires Conf., American Academy of Arts and Sciences, Cambridge, MA.
- Jan. 24, 1994 “Air Pollution Epidemiology: Is the Model the Message?” The First Colloquium on Particulate Air Pollution and Human Morbidity and Mortality”. Beckman Center of the NAS, Irvine, CA.
- May 23, 1994 “Ozone Epidemiological and Field Studies”. American Thoracic Society Annual Meeting, Boston, MA.
- May 25, 1994 “Epidemiological Evidence Linking Outdoor Air Pollution and Increased Hospital Admissions for Respiratory Ailments” American Thoracic Society Annual Meeting, Boston, MA.
- May 6, 1996 “Associations Between PM₁₀ & Mortality in Multiple US Cities”. Second Colloquium on Particulate Air Pollution and Health. Park City, Utah.
- Sept. 5, 1996 “Particulate Matter Exposure Issues for Epidemiology” U.S. EPA Particulate Matter Workshop, RTP, NC
- April 3, 1997 “Health Effects of Ambient Ozone & Particulate Matter” Air and Waste Assoc. Regional Conference On Impacts of EPA’s Proposed Changes to Ozone and PM Standards, Oak Brook, IL
- April 22, 1998 “The New EPA Standards for Ambient PM and Ozone” American Lung Association Annual Meeting, Chicago, IL.
- Dec. 21, 1999 “Global Overview of Human Death and Illness due to Air Pollution”. California Air Resources, Sacramento, CA.
- March 24, 2000 “Estimating Ancillary Impacts, Benefits and Costs Of Proposed GHG Mitigation Policies For Public Health” Resources for the Future, Wash., DC.
- June 24, 2002 “Investigations Into the Environmental Health Impacts Related to the WTC Disaster” Air And Waste Management Annual Meeting, Baltimore, MD.
- July 15, 2002 “Air Pollution and Human Health” NIEHS Built Environment Conference, RTP, NC
- July 26, 2002 “The Human Health Effects of Power Plant Emissions and Associated Air Pollution”, The Environment & Health Forum, Physicians for Social Responsibility, Washington, DC.
- October 7, 2002 “Community Exposures to Particulate Matter Air Pollution from the World Trade Center Disaster” Plenary Speaker at the American Association for Aerosol Research, Charlottesville, North Carolina.
- Nov. 11, 2002 “Characterization of Community Exposures to World Trade Center Disaster Airborne and Settled Dust Particulate Matter Air Pollution”, American Public Health Association Annual Meeting, Philadelphia, PA.
- Dec. 5, 2002 “Susceptibility of Older Adults to Air Pollution”, EPA Workshop on Differential Susceptibility of Older People to Environmental Hazards. National Academy of Sciences, Washington, DC.
- Feb. 3, 2003 “Health Effects of Particulate Matter Air Pollution”, National Air Quality Conference, U.S. EPA, San Antonio, Texas
- May 17, 2003 “Assessing the Influence of Particle Sources and Characteristics on Adverse Health Effects of PM”, PG18 - New Tools to Evaluate the Health Effects of Air Pollution in Epidemiologic Studies. American Thoracic Society Annual Meeting, Seattle, WA.
- Sep. 10, 2003 “Nature and impact of World Trade Center Disaster fine particulate matter air pollution at a site in Lower Manhattan after September 11.” Annual Meeting of the American Chemical Society, New York, NY.

- October 20, 2003 “Translating Air Pollution Risks to the Community” Annual Meeting of the NIEHS Center Directors, Baltimore, MD.
- May 18, 2004 “The Health Imperative for Implementation of the Clean Air Act” State and Territorial Air Pollution Program Administrators/ Association of Local Air Pollution Control Officials (STAPPA/ALAPCO) National Conference, Point Clear, Alabama.
- Oct. 18, 2004 “NIEHS Centers’ Investigations of the World Trade Center Collapse Pollution Exposures and Effects: A Public Health Collaboration” National Institute of Environmental Health Sciences Center Directors’ Meeting, Research Triangle Park, NC.
- May 25, 2005 “Human Health Effects Associated with Sulfate Aerosols”, American Thoracic Society Annual Meeting, San Diego, CA
- Oct. 24, 2005 “The Science Behind the Particulate Matter (PM) Standards” State and Territorial Air Pollution Program Administrators/ Association of Local Air Pollution Control Officials (STAPPA/ALAPCO) National Conference, Alexandria, Virginia.
- Oct. 14, 2008 “Diesel Air Pollution and Asthma Exacerbations in a Group of Children with Asthma” Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Pasadena, California.
- Feb. 26, 2010 “What studies are appropriate to use to estimate health impacts from specific sources such as diesel PM?” CARB Symposium: *“Estimating Premature Deaths from Long-term Exposure to PM_{2.5}”*. Sacramento, CA.
- May 6, 2011 “Lung Cancer Risks from Exposure to Fine Particle Air Pollution” NYU Cancer Institute Symposium: “Cancer and the Environment”, NYC, NY.
- May 16, 2012 “The Human Health Effects of Air Pollution” The Air We Breathe: Regional Summit on Asthma and Environment at Allegheny General Hospital, Pittsburgh, PA.
- June 20, 2013 “Particles in our Air: A Global Health Risk”, Northeastern University, Research Seminar. Boston, MA.
- Mar 5, 2015 “Air Pollution, Climate Change and Health”. Stegner Institute Air Quality Symposium, Salt Lake City, Utah.

International Presentations

- May 1, 1987 “Acid Aerosols: Their Origins, Occurrence, and Possible Health Effects”, Canadian Environmental Health Directorate Seminar, Health and Welfare Canada, Ottawa, Canada
- July 2, 1987 “Health Effects of Air Pollution in the US”, University of Sao Paulo, Sao Paulo, Brasil
- Feb. 5, 1991 “Results from the Analysis of Toronto Summer Sulfate and Aerosol and Acidity Data”, Workshop on Current Use and Future Directions of Hospital-Based Data in the Assessment of the Effects of Ambient Air Pollution on Human Health. Health and Welfare Canada, Ottawa, Canada.
- April 23, 1997 “An Evaluation of the Role of Acid Aerosols in Particulate Matter Health Effects”, Conference on the Health Effects of Particulate Matter in Ambient Air. Air & Waste Management Association, Prague, Czech Republic.
- May 12, 1998 “The Health Effects of PM and Ozone Air Pollution”, Air Pollution: Effects on Ontario’s Health and Environment. Ontario Medical Association, Toronto, Canada
- Nov. 1, 1999 “Climate Change and the Health Impacts of Air Pollution”. The Public Health Opportunities and Hazards of Global Warming Workshop at the U.N. Framework Convention on Climate Change, Conference of Parties (COP5), Bonn, Germany.
- August 31, 2000 “Particulate Matter Air Pollution and Health in three Northeastern Cities”, World Congress on Lung Health, Florence, Italy
- January 29, 2001 “PM Exposure Assessment and Epidemiology”, NERAM International Colloquia: Health and Air Quality: Interpreting Science for Decision Makers. Ottawa, Canada.
- Feb. 4-5, 2002: “Air Pollution Exposure Assessment Approaches in U.S. Long-Term Health Studies”, Workshop on Exposure Assessment in Studies on the Chronic Effects of Long-term Exposure to Air Pollution, World Health Organization, Bonn, Germany

- May 2, 2002 “Health Effects of Sulfate Air Pollution” Air Pollution as a Climate Forcing Workshop, East-West Center, Honolulu, Hawaii
- Sept. 24, 2003 “Identification and Characterization of World Trade Center Disaster Fine Particulate Matter Air Pollution at a Site in Lower Manhattan Following September 11.” Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Perth, Australia.
- Dec. 1, 2003 “Terrorism and the Pulmonary Effects of the World Trade Center Disaster Particulate Matter Air Pollution”, British Thoracic Society, London, England.
- Sept 14, 2005 “Results And Implications of The Workshop on the Source Apportionment of PM Health Effects”, Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Johannesburg, South Africa.
- Sept. 4, 2006 “A Source Apportionment of U.S. Fine Particulate Matter Pollution for Health Effects Analysis”, Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Paris, France.
- Sept. 4, 2007 “Applying Attributable Risk Methods to Identify Susceptible Subpopulations”, Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Mexico City, Mexico.
- Aug. 27, 2009 “Ischemic Heart Disease Mortality Associations with Long-Term Exposure to PM_{2.5} Components”, Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Dublin, Ireland.
- Dec. 1, 2010 “The Hidden Air Quality Health Benefits of Climate Change Mitigation”. The Energy and Resources Institute (TERI), Lodhi Road, New Delhi, India.
- July 17, 2012 “Recent Findings on the Mechanisms and Health Risks of Particulate Matter Air Pollution”, European Centre for Environment & Human Health, Truro, England.
- Aug. 29, 2012 “Health Effects of PM Components: NYU NPACT Epidemiology Results and their Integration with Toxicology Results”, Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Columbia, SC.
- May 20, 2013 “Long-term PM_{2.5} Exposure and Mortality in the NIH-AARP Cohort”, Annual Meeting of the American Thoracic Society (ATS). Philadelphia, PA.
- Oct. 27, 2013 “Human Health Effects and Global Implications of Particle Air Pollution”, Center of Excellence in Exposure Science and Environ. Health, Technion University, Haifa, Israel.
- May 17, 2015 “Human Health Co-Benefits of Climate Change Mitigation Measures” in the Environment, Global Climate Change And Cardiopulmonary Health session of the American Thoracic Society (ATS) Annual Meeting in Denver, CO, USA.
- Jan. 21, 2016 “Particle Air Pollution: Its Adverse Human Health Effects and Potential Climate Mitigation Health Co-Benefits”. Imperial College. London, England.
- Sept. 1, 2016 “Air Quality Health Co-benefits from Climate Change Mitigation Measures”. 2016 Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Rome, Italy.
- Apr. 22, 2017 “Clean Air Health Benefits from Climate Change Mitigation Action”. Global Health & Innovation Conference. Yale University, New Haven, CT.

Scientific Meeting Sessions Chaired

- May 1, 1996 “Epidemiological Findings”, 2nd Colloquium on Particulate Air Pollution & Health. Park City, UT.
- May 14, 1996 “Particulate Toxicity”, American Thoracic Society Annual Meeting, New Orleans, LA.
- Jan. 30, 1998 “Evaluation of PM Measurement Methods”. PM_{2.5}: A Fine Particulate Standard Specialty Conference. Los Angeles, CA.
- August 18, 1998 “Communities and Airports: How to Co-Exist?”, Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Boston, MA.
- April 28, 1998 “Clean Air Act Update”, American Thoracic Society Annual Meeting, Chicago, IL.

Oct. 21, 1998 “Health Effects and Regulatory Issues in PM”, Particulate Methodology Workshop,. U.S. EPA Center, for Statistics and the Env., Univ. of Washington, Seattle, WA.

April 26, 1999 “Pulmonary Smoking and Air Pollution Epidemiology.” American Thoracic Society Annual Meeting, San Diego, CA

Sept. 6, 1999 “Personal exposures to Gases and Particles”, Annual Conference of the International Society for Environmental Epidemiology (ISEE), Athens, Greece.

March 31, 2000 “Epidemiology: Particles, Co-pollutants & Morbidity and Mortality”, Workshop on Inhaled Environmental/Occupational Irritants and Allergens: Mechanisms of Cardiovascular Responses, American Thoracic Society, Scottsdale, AZ

Jan. 26, 2000 “Epidemiology of Particulate Matter Air Pollution”, PM2000 Specialty Conference, Air & Waste Management Assoc., Charleston, SC

May 8, 2000 “Outdoor Air Pollution: Epidemiologic Studies”, American Thoracic Society Annual Meeting, Toronto, Canada

Sept. 5, 2001 “Mortality Epidemiology Studies”, Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Garmisch, Germany.

May 20, 2002 "After September 11: Bio-terrorism and The Environmental Health Aftermath of The World Trade Center Disaster", Plenary Session. American Thoracic Society Annual Meeting, Atlanta, GA.

April 1, 2003 “Epidemiology: Short-Term and Long-Term Health Effects”, Conference on Particulate Matter: Atmospheric Sciences, Exposure, and the Fourth Colloquium on PM and Human Health, Pittsburgh, PA

May 19, 2003 “Particulate Air Pollution and Diseases in Adults”, American Thoracic Society Annual Meeting, Seattle, WA.

May 21, 2003 “Air Pollution as a Cause of Childhood Asthma and Chronic Airway Disease”, American Thoracic Society Annual Meeting, Seattle, WA.

Sept. 2003 “Unexplained Medical Symptoms”, Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Perth, Australia.

Sept. 25, 2005 “Technology and Health”, Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Johannesburg, South Africa.

June 22, 2006 “Characteristics of PM and Related Considerations”, Annual Meeting of the Air and Waste Management Association, New Orleans, LA.

Sept. 3, 2006 “Air Pollution Mechanisms”, Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Paris, France.

Sept. 20, 2006 “Linkage and Analysis of Air Quality and Health Data”, EPA & CDC Symposium on Air Pollution Exposure and Health, RTP, NC

Sept. 5, 2007 “Radiation Exposures and Health Risks”, 2007 Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Mexico City, Mexico

Aug. 26, 2009 “Exploring the Range of Methodological Approaches Available for Environmental Epidemiology.” 2009 Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Dublin, Ireland

March 23, 2010 “Exposure to and Health Effects of Traffic Pollution”, 2010 American Association for Aerosol Research Conference on Air Pollution and Health, San Diego, CA.

Sept. 16, 2011 “Susceptibility to Air Pollution”, 2011 Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Barcelona, Spain.

Aug. 27, 2012 “Source Apportionment Of Outdoor Air Pollution: Searching For Culprits”. 2012 Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Columbia, SC.

Aug. 21, 2013 “Source-specific health effects of air pollution”. 2013 Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Basel, Switzerland.

- May 19, 2015 “Indoor and outdoor pollution: epidemiology and mechanisms”. 2015 Annual Meeting of the American Thoracic Society (ATS). Denver, CO, USA.
- Sep. 1, 2016 “Climate Change, Mitigation Measures and Co-Benefits”. 2016 Annual Meeting of the International Society for Environmental Epidemiology (ISEE). Rome, Italy.
- Feb. 12, 2017 “Human Health Effects and Global Implications of Particle Air Pollution”. MASDAR Institute. Abu Dhabi, United Arab Republic.

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Invited Journal Editorials

- Thurston GD and Bates DM. (2003). Air Pollution as an Underappreciated Cause of Asthma Symptoms, 2003. JAMA, 290:14, pp. 1915-1916.
- Thurston G.D. (2006). Hospital admissions and fine particulate air pollution. JAMA. Oct 25; 296(16):1966.
- Thurston G. (2007). Air pollution, human health, climate change and you. Thorax. 2007 Sep; 62 (9): 748-9.
- Thurston GD, Balmes JR. (2012). Particulate matter and the environmental protection agency: setting the right standard. Environmental Health Policy Committee of the American Thoracic Society. Am J Respir Cell Mol Biol. Dec;47(6):727-8. doi: 10.1165/rcmb.2012-0414ED.
- Thurston GD. (2013). Mitigation Policy: Health Co-Benefits. Nature Climate Change. Oct. (3) 863-864.
- Thurston GD, Balmes JR. (2017). “We need to “Think Different” about PM. Am. J Resp. & Crit. Care Med. (In Press)

Book Chapters

- Thurston, G.D. and Leber, M. The relationship between asthma and air pollution. In: *Emergency Asthma* (ed.: B. Brenner), pp. 127-144. Marcel-Dekker, New York, NY (1999).
- Thurston, G.D. and Ito, K. Epidemiological studies of ozone exposure effects. In: *Air Pollution and Health* (ed.: S. Holgate and H. Koren). Academic Press. London. pp. 485-510 (1999).
- Chen, LC, Thurston, G, and Schlesinger, RB. Acid Aerosols as a Health Hazard. In: *Air Pollution and Health* (ed.: J. Ayres, R. Maynard, and R. Richards). Air Pollution reviews: Vol. 3. Imperial College Press. London. pp. 111-161 (2006).
- Thurston, G.D. and Wallace, L. Air Pollution: Outdoor and Indoor Sources. In: *Environmental and Occupational Medicine*, 4th Edition (Eds.: W. Rom and S. Markowitz). Lippincott, Williams, and Wilkins, Philadelphia (2006).
- Thurston, G.D. Outdoor Air Pollution. In: *Encyclopedia of Public Health* (ed. K. Heggenhougen) Elsevier Press. (2008).
- Thurston, G.D and Bell, M. Aerosols, global climate, and the human health co-benefits of climate change mitigation. In *Aerosol Handbook* (2nd edition) (eds.: Lev S. Ruzer and Naomi H. Harley). CRC Press (2012).
- Thurston, G. and Bell, M. The Human Health Co-benefits of Air Quality Improvements Associated with Climate Change Mitigation. In. Global Climate Change and Public Health (eds. Kent E. Pinkerton and William N. Rom). Humana Press (2013).

National Academy Committee Books Co-Authored

- National Research Council (NRC), *Waste Incineration & Public Health*. Committee on Health Effects of Waste Incineration. Board on Environmental Studies and Toxicology. National Academy Press, Washington, DC (2000).

International Reports Co-Authored

Health Canada, *Health and Environmental Impact Assessment Panel Report*, "Joint Industry/Government Study: Sulfur in Gasoline and Diesel Fuels". Ottawa, Canada. (1997).

World Health Organization (WHO), *Exposure assessment in studies on the chronic effects of long-term exposure to air pollution*. Report EUR/03/5039759. Geneva, Switzerland (2003).

Peer Reviewed Journal Articles/Letters

Thurston, G.D. General Discussion: Atmospheric dispersion modeling - A critical review. *J. Air Pollut. Control Assoc.* 29: 939 (1979).

Thurston, G.D. Discussion of multivariate analysis of particulate sulfate and other air quality variables by principal components - part I. Annual data from Los Angeles and New York. *Atmos. Environ.* 15: 424-425 (1981).

Thurston, G.D., J.D. Spengler and P.J. Samson. An assessment of the relationship between regional pollution transport and trace elements using wind trajectory analysis. *Receptor Models Applied to Contemporary Pollution Problems*, Ed. E. Frederick, Air Pollution Control Association, Pittsburgh, PA (1982).

Spengler, J.D. and G.D. Thurston. Mass and elemental composition of fine and coarse particles in six U.S. cities. *J. Air Poll. Control Assoc.* 33: 1162-1171 (1983).

Currie, L., R. Gerlach, C. Lewis, W.D. Balfour, J. Cooper, S. Dattner, R. DeCesar, G. Gordon, S. Heisler, P. Hopke, J. Shah and G. Thurston. Inter-laboratory comparison of source apportionment procedures: Results for simulated data sets. *Atmos. Environ.* 18: 1517-1537 (1984).

Thurston, G.D. and J.D. Spengler. A quantitative assessment of source contributions to inhalable particulate matter in metropolitan Boston, Massachusetts. *Atmos. Environ.* 19: 9-25 (1985).

Thurston, G.D. and N.M. Laird. Letters: Tracing aerosol pollution. *Science* 227: 1406-1407 (1985).

Thurston, G.D. and J.D. Spengler. A multivariate assessment of meteorological influences on inhalable particle source impacts. *J. Clim. and Appl. Met.* 24: 1245-1256 (1985).

Ozkaynak, H., J.D. Spengler, A. Garsd and G.D. Thurston. Assessment of population health risks resulting from exposures to airborne particles. *Aerosols: Second U.S.-Dutch International Symposium*, Lewis Publishing Co., December 1985 (Peer Reviewed).

Ozkaynak, H., A.D. Schatz, G.D. Thurston, R.G. Isaacs and R.B. Husar. Relationships between aerosol extinction coefficients derived from airport visual range observations and alternative measures of airborne particle mass. *J. Air Pollut. Control Assoc.* 35: 1176-1185 (1985).

Thurston, G.D. and P.J. Liroy. Receptor modeling and aerosol transport. *Atmos. Environ.* 21: 687-698 (1987).

Ozkaynak, H., and G.D. Thurston. Associations between 1980 U.S. mortality rates and alternative measures of airborne particle concentration. *Risk Analysis* 7: 449-460 (1987).

Liroy, P.J., D. Spektor, G. Thurston, N. Bock, F. Speizer, C. Hayes and M. Lippmann. The design considerations for ozone and acid aerosol exposure and health investigation: The Fairview Lake Summer Camp-Photochemical Smog Case Study. *Environ. Int'l.* 13: 27-83 (1987).

Spektor, D.M., M. Lippmann, P.J. Liroy, G.D. Thurston, K. Citak, D.J. James, N. Bock, F.E. Speizer and C. Hayes. Effects of ambient ozone on respiratory function in active normal children. *Am. Rev. Resp. Dis.* 137: 313-320 (1988).

Lippmann, M. and G.D. Thurston. Exposure Assessment - Input into risk assessment. *Arch. Environ. Health* 43: 113-123 (1988).

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Ito, K. and G.D. Thurston. Characterization and reconstruction of historical London England acidic aerosol concentrations. *Environ. Health Persp.* 79: 35-42 (1989).

- Thurston, G.D., K. Ito, M. Lippmann, and C. Hayes. Re-examination of London mortality in relation to exposure to acidic aerosols during 1962-1973 winters. *Environ. Health Persp.* 79: 73-82 (1989).
- Waldman, J.M., P.J. Lioy, G.D. Thurston and M. Lippmann. Spatial and temporal patterns in summertime sulfate aerosol acidity and neutralization within a metropolitan area. *Atmos. Environ.* 24B: 115-126 (1990).
- Echalar, E., P. Artaxo and G.D. Thurston. Source apportionment of aerosols in the industrial area of Cubatao, Brazil. In: *Aerosols: Science, Industry, Health and Environment* (S. Masuda and K. Takahashi, Eds.), pp. 942-945, Pergamon Press (1990).
- Spektor, D.M., V.A. Hofmeister, P. Artaxo, J. Brague, F. Echalar, D.P. Nogueira, C. Hayes, G.D. Thurston and M. Lippmann. Effects of heavy industrial pollution on respiratory function in the children of Cubatao, Brazil: A preliminary report. *Environ. Health Persp.* 94: 51-54 (1991).
- Waldman, J.M., S.K.C. Liang, P.J. Lioy, G.D. Thurston, and M. Lippmann. Measurements of sulfate aerosol and its acidity in the SO₂ source region of Chestnut Ridge, PA. *Atmos. Environ.* 25A: 1327-1333 (1991).
- Spektor, D.M., G.D. Thurston, J. Mao, D. He, C. Hayes, and M. Lippmann. Effects of single and multiday ozone exposures on respiratory function in active normal children. *Environ. Res.* 55: 107-122 (1991).
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- Thurston, G.D., J.E. Gorczynski, J.H. Currie, D. He, K. Ito, M. Lippmann, J. Waldman and P. Lioy. The nature and origins of acid aerosol pollution measured in Metropolitan Toronto, Ontario. *Environ. Res.* 65:254-270 (1994).
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*Environmental Benefits Mapping and Analysis
Program – Community Edition (BenMAP-CE)
Training*

George Thurston

NYU School of Medicine

*Has satisfactorily completed the US Environmental Protection Agency's
“Environmental Benefits Mapping and Analysis Program – Community Edition
(BenMAP-CE) Training” workshop.*

August 24, 2014

International Society for Environmental Epidemiology Conference, Seattle, WA

Jennifer M. Lloyd

Jennifer M. Lloyd, Training Instructor

Neal Fann

BenMAP-CE Program Manager

Appointment

From: Page, Steve [Page.Steve@epa.gov]
Sent: 5/15/2017 8:54:37 PM
To: Page, Steve [Page.Steve@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Jones, Mike [Jones.Mike@epa.gov]; Harnett, Bill [Harnett.Bill@epa.gov]
CC: South, Peter [South.Peter@epa.gov]; Alston, Lala [Alston.Lala@epa.gov]; Loving, Shanita [Loving.Shanita@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Johnson, Tanya [Johnson.Tanya@epa.gov]; McKinney, Voronina [mckinney.voronina@epa.gov]
Subject: NAEMS OIG Response
Location: RTP-OAQPS-C401A
Start: 5/23/2017 1:30:00 PM
End: 5/23/2017 2:00:00 PM
Show Time As: Busy

To: Page, Steve; Dunham, Sarah; Lewis, Josh; Koerber, Mike; Tsirigotis, Peter; Dunkins, Robin; Schrock, Bill; Jones, Mike; Harnett, Bill
Cc: South, Peter; Alston, Lala; Loving, Shanita; Atkinson, Emily; Johnson, Tanya; McKinney, Voronina

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 10/4/2017 6:20:53 PM
To: Dunham, Sarah [Dunham.Sarah@epa.gov]
Subject: Fwd: OIG Report: "Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply With Clean Air Act and Other Statutes"
Attachments: afo air quality conservation measures guide.pdf; ATT00001.htm

Begin forwarded message:

From: "Dunkins, Robin" <Dunkins.Robin@epa.gov>
To: "Davis, Patrick" <davis.patrick@epa.gov>
Cc: "Gunasekara, Mandy" <Gunasekara.Mandy@epa.gov>, "Lewis, Josh" <Lewis.Josh@epa.gov>, "Noonan, Jenny" <Noonan.Jenny@epa.gov>
Subject: **Re: OIG Report: "Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply With Clean Air Act and Other Statutes"**

Patrick,

After many months of working closely with USDA on the Conservation Measures for Livestock Operations Document, we finally got concurrence from USDA today and per our agreement, posted it on our website this evening. Tomorrow morning I will coordinate with our communication team (I'm CC'ing Jenny Noonan) on how best to notify our stakeholders that it has been finalized and make it available to them. I have attached a pdf copy of the document per your request. I also plan to send the website address to your staff as well as send them a list of stakeholder groups we notified. Let me know if you have any questions.

Thanks,

Robin Dunkins

From: Davis, Patrick
Sent: Wednesday, September 20, 2017 3:01 PM
To: Dunham, Sarah
Cc: Gunasekara, Mandy; Dunkins, Robin
Subject: RE: OIG Report: "Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply With Clean Air Act and Other Statutes"

Hi Robin,

Could you please provide me a copy of the BMP report after it is cleared by USDA?

Thanks,

Patrick Davis

Environmental Protection Agency

Deputy Assistant Administrator, Office of Land and Emergency Management

202-564-3103 office

202-380-8341 cell

Information sent to this email address may be subject to FOIA.

From: Dunham, Sarah
Sent: Wednesday, September 20, 2017 2:55 PM
To: Davis, Patrick <davis.patrick@epa.gov>
Cc: Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>
Subject: Re: OIG Report: "Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply With Clean Air Act and Other Statutes"

Hi Patrick-

Robin Dunkins in our office of Air Quality Planning and Standards in North Carolina is the POC. The BMP report is close to getting USDA clearance - maybe as soon as next week.

Also, just FYI, we have been providing limited (mostly, informal) assistance to OLEM on the CERCLA/EPRCA issue.

Thanks

Sarah

On Sep 20, 2017, at 12:05 PM, Davis, Patrick <davis.patrick@epa.gov> wrote:

Hi Mandy and Sarah,

Deliberative Process / Ex. 5

Thanks,

Patrick Davis

Environmental Protection Agency

Deputy Assistant Administrator, Office of Land and Emergency Management

202-564-3103 office

202-380-8341 cell

Information sent to this email address may be subject to FOIA.

From: Bodine, Susan

Sent: Tuesday, September 19, 2017 6:30 PM

To: Davis, Patrick <davis.patrick@epa.gov>

Subject: FW: OIG Report: "Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply With Clean Air Act and Other Statutes"

This is relevant to the CERCLA EPCRA issue

From: Starfield, Lawrence
Sent: Tuesday, September 19, 2017 5:57 PM
To: Bodine, Susan <bodine.susan@epa.gov>
Subject: FW: OIG Report: "Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply With Clean Air Act and Other Statutes"

FYI. I haven't had a chance to read this yet.

Larry

From: OIG News
Sent: Tuesday, September 19, 2017 1:31 PM
To: Dunham, Sarah <Dunham.Sarah@epa.gov>; Starfield, Lawrence <Starfield.Lawrence@epa.gov>
Cc: Pruitt, Scott <Pruitt.Scott@epa.gov>; Jackson, Ryan <jackson.ryan@epa.gov>; Darwin, Henry <darwin.henry@epa.gov>; Chmielewski, Kevin <chmielewski.kevin@epa.gov>; Bloom, David <Bloom.David@epa.gov>; Trent, Bobbie <Trent.Bobbie@epa.gov>; Anthony, Sherri <Anthony.Sherri@epa.gov>; Howard, MarkT <Howard.Markt@epa.gov>; Minoli, Kevin <Minoli.Kevin@epa.gov>; Lyons, Troy <lyons.troy@epa.gov>; Valentine, Julia <Valentine.Julia@epa.gov>; Threet, Derek <Threet.Derek@epa.gov>; Shaw, Betsy <Shaw.Betsy@epa.gov>; Cozad, David <Cozad.David@epa.gov>; Traylor, Patrick <traylor.patrick@epa.gov>; Spriggs, Gwendolyn <Spriggs.Gwendolyn@epa.gov>; Vincent, Marc <Vincent.Marc@epa.gov>
Subject: OIG Report: "Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply With Clean Air Act and Other Statutes"

Attached is the EPA Office of Inspector General (OIG) report, *Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply With Clean Air Act and Other Statutes* (Report No. 17-P-0396). This report will be available to the public on the OIG's website at www.epa.gov/oig.

<_epaoig_20170919-17-P-0396_cert.pdf>


Message

From: Cyran, Carissa [Cyran.Carissa@epa.gov]
Sent: 5/22/2017 9:12:07 PM
To: Dunham, Sarah [Dunham.Sarah@epa.gov]
Subject: Visit to RTP on tomorrow
Attachments: 0_5_23_17 final agenda.docx; 1_a_section 109d 05_23_17.docx; 1_b_Section 321 05_23_17.docx; 2_AFOOIG Report 05_23_17.docx; 4_a_SO2D RD3 Nonattainment Summaries 5-23-17.docx; 4_b_SO2D RD3 Unclassifiable Summaries 5-23-17.docx; 3_Regional Haze Rule 5_23_17.docx

Attached is the agenda and materials below in prep for your visit to RTP tomorrow. Mike is planning to pick you up from the airport (please call Mike's cell phone upon arrival 919 450-6478). OAQPS will provide you a binder with the agenda and attachments. Peter T will provide transport back to the airport.



0_5_23_17 final
agenda.docx

8:15 to 8:45	Deliberative Process / Ex. 5	
8:45 to 9:00		
9:00 to 9:30		
9:30 to 10:00	NAEMS OIG Response  2_AFOOIG Report 05_23_17.docx	
10:00 to 10:45	Deliberative Process / Ex. 5	
11:00 to 12:00		
12:00 to 1:00		
1:00 to 1:30		
1:30 to 2:15		
2:30 to 3:15		

	Deliberative Process / Ex. 5	
3:15 to 4:00		
4:00 to 4:45		

Sarah Dunham Visit to RTP on 5/23/17
Final Agenda

7:42 am
8:15 to 8:45

8:45 to 9:00

9:00 to 9:30

Deliberative Process / Ex. 5

9:30 to 10:00

NAEMS OIG Response

Room location: C401A, Call in: Ex. 6 Personal Privacy (PP) (no code necessary)

10:00 to 10:45

11:00 to 12:00

12:00 to 1:00

1:00 to 1:30

1:30 to 2:15

2:30 to 3:15

3:15 to 4:00

4:00 to 4:45

Deliberative Process / Ex. 5

4:45

Depart RTP for RDU

6:10

Flight departs for return to DC

Message

From: Perez, Idalia [Perez.Idalia@epa.gov]
Sent: 9/22/2017 9:34:55 PM
To: Air Program Managers - Regions [Air_Program_Managers_Regions@epa.gov]; ORC - Regional Air Managers [ORC-Regional_Air_Managers@epa.gov]; Air Division Directors and Deputies [Air_Division_Directors_and_Deputies@epa.gov]
CC: DeMocker, Jim [DeMocker.Jim@epa.gov]; Rapp, Steve [Rapp.Steve@epa.gov]; Saltman, Tamara [Saltman.Tamara@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Benner, Tim [Benner.Tim@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Cyran, Carissa [Cyran.Carissa@epa.gov]; Salgado, Omayra [Salgado.Omayra@epa.gov]; Hyde, Courtney [Hyde.Courtney@epa.gov]; Millett, John [Millett.John@epa.gov]; Schultz, Laurel [Schultz.Laurel@epa.gov]
Subject: OAR Lead Region News, Updates & Reminders: 9-22-17
Attachments: ENV_DEFENSE-#819590-v1-RH_Revisions_Rule_third_motion_for_extension_of_b....pdf; VW_trust.pdf

Today is the Autumnal Equinox. Happy 1st day of Fall!

Updates

Ex. 5 Deliberative Process (DP)

- **OIG Report on Emissions from CAF:** The Office of the Inspector General (OIG) conducted a review to determine what actions the EPA has taken to evaluate air emissions from animal feeding operations. A lack of reliable methods for estimating these emissions prevented the EPA and state and local agencies from determining whether these operations are subject to statutory requirements. In 2005, the EPA and the animal feeding operations industry entered into a compliance agreement to address this challenge. As part of this agreement, the industry agreed to fund an air emissions monitoring study that the EPA would use to develop improved emission estimating methodologies for the industry. The OIG found that the emissions monitoring study was completed more than 7 years ago at a cost of about \$15 million, but the EPA has not finalized any emission estimating methodologies for animal feeding operations. In addition, the EPA has only drafted methodologies for about one-fourth of the emission source and pollutant combinations studied.

Ex. 5 Deliberative Process (DP)

Upcoming Meetings & Events:

- **NACAA Fall Meeting:** September 25th – 27th, Seattle, Washington. More information [here](#).
- **Fall ADD Meeting:** September 27th – 28th, Seattle, Washington. More information [here](#).
- **APM Meeting:** November 14th – 16th, Philadelphia, Pennsylvania. More information [here](#).
- **SIP Training:** January 23rd – 25th, RTP, North Carolina.

Recent EPA News Releases for Air

- [EPA Approves Emergency Fuel Waiver for Florida](#); Release Date: 09/21/2017
- [EPA Awards two \\$100k contracts to Wheat Ridge and Steamboat Springs companies for innovative environmental technology](#); Release Date: 09/19/2017
- [Salt Lake City company receives \\$100k to develop formaldehyde detection technology](#); Release Date: 09/19/2017
- [EPA Exercises Enforcement Discretion for Power Generators Donated to Communities Impacted by Hurricanes Harvey and Irma](#); Release Date: 09/18/2017

Idalia M. Pérez, Ph.D. | OAR Lead Region Coordinator
 U.S. Environmental Protection Agency – Region 9
 75 Hawthorne St. (AIR-1), San Francisco, CA 94105
 P: 415.972.3248 | email: perez.idalia@epa.gov
[OAR Lead Region SharePoint Site](#)

Our mission is to protect human health and the environment.

Appointment

From: Alston, Lala [Alston.Lala@epa.gov]
Sent: 5/15/2017 8:54:35 PM
To: Dunham, Sarah [Dunham.Sarah@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Jones, Mike [Jones.Mike@epa.gov]; Harnett, Bill [Harnett.Bill@epa.gov]
CC: South, Peter [South.Peter@epa.gov]; Alston, Lala [Alston.Lala@epa.gov]; Loving, Shanita [Loving.Shanita@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Johnson, Tanya [Johnson.Tanya@epa.gov]; McKinney, Voronina [mckinney.voronina@epa.gov]
Subject: NAEMS OIG Response
Location: RTP-OAQPS-C401A
Start: 5/23/2017 1:30:00 PM
End: 5/23/2017 2:00:00 PM
Show Time As: Tentative

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 6/22/2017 9:18:20 PM
To: Dunham, Sarah [Dunham.Sarah@epa.gov]
Subject: Re: Updated Weekly

Ex. 5 Deliberative Process (DP)

On Jun 22, 2017, at 5:09 PM, Dunham, Sarah <Dunham.Sarah@epa.gov> wrote:

Ex. 5 Deliberative Process (DP)

~~meeting and otherwise to nag or elevate. Thanks~~

From: Lewis, Josh
Sent: Thursday, June 22, 2017 4:20 PM
To: Dunham, Sarah <Dunham.Sarah@epa.gov>
Cc: Cyran, Carissa <Cyran.Carissa@epa.gov>
Subject: Updated Weekly

Ex. 5 Deliberative Process (DP)

OAR Weekly Report – June 22, 2017

Ex. 5 Deliberative Process (DP)

Upcoming Meetings, Public Events, or Other Public Releases

Ex. 5 Deliberative Process (DP)

- **<!--[if !supportLists]--><!--[endif]-->National Air Emissions Monitoring Study (NAEMS)/Office of Inspector General (OIG) Response:** On Monday, I will be responding to an OIG report on the NAEMS, which was a data collection effort to evaluate air emissions from animal feeding operations (AFOs).

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Recap of the Past Week

- <!--[if !supportLists]--><!--[endif]-->**Signed this week:**
 - <!--[if !supportLists]--><!--[endif]-->Federal Register Notice announcing a one-year delay in the deadline for promulgating initial area designations for the 2015 Ozone National Ambient Air Quality Standards (NAAQS).
 - <!--[if !supportLists]--><!--[endif]-->Direct final rule and parallel proposal to extend the use of an alternative compliance monitoring method for hydrogen chloride in the National Emission Standards for Hazardous Air Pollutants from the Portland Cement Manufacturing Industry.
- <!--[if !supportLists]--><!--[endif]-->**Continuity of Operations (COOP):** Four senior OAR representatives participated in Wednesday's COOP exercise.
- <!--[if !supportLists]--><!--[endif]-->**OAR All Hands Meetings:** I held All Hands meetings with each of the OAR offices this week to update staff on VERA/VSIP opportunities.

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 6/15/2017 3:43:38 PM
To: Atkinson, Emily [Atkinson.Emily@epa.gov]
CC: Dunham, Sarah [Dunham.Sarah@epa.gov]
Subject: Re: Draft OAR Weekly for 6/15/2017

Sarah - hold off on reviewing this...it needs a few more updates

On Jun 15, 2017, at 11:39 AM, Atkinson, Emily <Atkinson.Emily@epa.gov> wrote:

OAR Weekly Report – June 15, 2017

Upcoming Hot Issues and Important Deadlines

Ex. 5 Deliberative Process (DP)

Upcoming Meetings, Public Events, or Other Public Releases

- <!--[if !supportLists]--><!--[endif]-->NAEMS/IG: By June 26th, EPA will provide a written response to the OIG regarding a draft report “Emissions From Animal Feeding Operations Remain Largely Uncharacterized More Than 7 Years After Study Completed.”

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Recap of the Past Week

- <!--[if !supportLists]--><!--[endif]-->**Signed this week:** Two proposed rules regarding the Oil and Natural Gas New Source Performance Standards (NSPS).
- <!--[if !supportLists]--><!--[endif]-->**Energy Star Partner of the Year Update:** This week, we updated the Energy Star partner website with the timeline for the 2018 Partner of the Year application process. Applications will be due in early December.

<OAR Weekly Report.June 15.docx>

From: Vincent, Marc [Vincent.Marc@epa.gov]
Sent: 2/13/2017 8:20:37 PM
To: Shaw, Betsy [Shaw.Betsy@epa.gov]; DeMocker, Jim [DeMocker.Jim@epa.gov]; Salgado, Omayra [Salgado.Omayra@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Page, Steve [Page.Steve@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Cherepy, Andrea [Cherepy.Andrea@epa.gov]; OAQPS CMT [OAQPS_CMT@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Hyde, Courtney [Hyde.Courtney@epa.gov]; Krieger, Jackie [Krieger.Jackie@epa.gov]; Logan, Kia [Logan.Kia@epa.gov]; Bullard, Pamela [Bullard.Pamela@epa.gov]; Hengst, Benjamin [Hengst.Benjamin@epa.gov]; Shoaff, John [Shoaff.John@epa.gov]; Jones, Mike [Jones.Mike@epa.gov]; Collins, JoLynn [Collins.Jolynn@epa.gov]; Price, Doris [Price.Doris@epa.gov]; Burch, Julia [Burch.Julia@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Harvey, Reid [Harvey.Reid@epa.gov]; Gitlin, Bonnie [Gitlin.Bonnie@epa.gov]; Childers, Pat [Childers.Pat@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Childers, Pat [Childers.Pat@epa.gov]
CC: Marusiak, Eleanor [Marusiak.Eleanor@epa.gov]; Hufford, Matthew [hufford.matthew@epa.gov]; Perez, Idalia [Perez.Idalia@epa.gov]
Subject: OAR Monthly OIG and GAO Audit Tracking Charts – Feb 2017
Attachments: Audit Notification - File Server Security (Project No OA-FY17-0138).pdf; OIG Gasoline Benzene Official Draft Report -- for Agency Comment -- 2-8-17.pdf; OAR's IG_GAO_audits_Feb 2017.xlsx; ALL_STAFF-#1794344-v1-EMPF_2_3_7_-_EPA_NOTIFICATION_LETTER_101277.docx; OIG Discussion Document for AFO Evaluation -- for Agency Review -- 2-10-17.docx

Hi All,

Attached are the monthly audit tracking charts for OAR's active OIG and GAO audits. Updates are noted in red text; there is one new OIG and one new GAO engagement (noted in blue text) to note for the February update:

- New OIG Engagement: *Audit of File Server Security (OA-FY17-0138)*
 - Objective: To determine whether the EPA is implementing security controls around the agency's file servers (notification memo attached).
- New GAO Engagement: *Tribal Control over Energy Delivery, Management, and Resource Development (101277)*
 - Objectives (notification memo attached):
 - To what extent have tribal nations assumed greater control and decision-making authority over the management and development of their energy resources?
 - What is known about factors that have hindered tribal nations from pursuing greater self-governance under existing authorities?
 - What actions have federal agencies taken to help tribal nations build the capacity needed to assume greater self-governance?

As a reminder, in the past week the OIG also released two documents for comment by:

- **February 27:** *EPA's Efforts to Evaluate AFO Air Emissions (OPE-FY16-0018)* – see discussion document attached.
- **March 10:** *Improved Data and EPA Oversight Are Needed to Assure Compliance With the Standards for Benzene Content in Gasoline (OPE-FY15-0051)* – see draft report attached.

Please let me know if there are any questions or additional information is needed.

Thank you,

Marc Vincent
Office of Program Management Operations

Office of Air and Radiation
(202)564-0876

From: Atkinson, Emily [Atkinson.Emily@epa.gov]
Sent: 6/15/2017 3:36:19 PM
To: Millett, John [Millett.John@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Dunham, Sarah [Dunham.Sarah@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; DeMocker, Jim [DeMocker.Jim@epa.gov]
Subject: RE: draft of OAR Weekly Report

Thanks John. I will put these updates in . . .

From: Millett, John
Sent: Thursday, June 15, 2017 11:27 AM
To: Lewis, Josh <Lewis.Josh@epa.gov>; Dunham, Sarah <Dunham.Sarah@epa.gov>; Shaw, Betsy <Shaw.Betsy@epa.gov>; DeMocker, Jim <DeMocker.Jim@epa.gov>; Atkinson, Emily <Atkinson.Emily@epa.gov>
Subject: RE: draft of OAR Weekly Report

Ex. 5 Deliberative Process (DP)

From: Lewis, Josh
Sent: Wednesday, June 14, 2017 8:59 AM
To: Dunham, Sarah <Dunham.Sarah@epa.gov>; Millett, John <Millett.John@epa.gov>; Shaw, Betsy <Shaw.Betsy@epa.gov>; DeMocker, Jim <DeMocker.Jim@epa.gov>
Subject: draft of OAR Weekly Report

I'll touch on this at RT. (Yellow are things still in flux or questionable)

OAR Weekly Report – June 8, 2017

Upcoming Hot Issues and Important Deadlines

Ex. 5 Deliberative Process (DP)

Upcoming Meetings, Public Events, or Other Public Releases

- NAEMS/IG: By June 26th, EPA will provide a written response to the OIG regarding a draft report “Emissions From Animal Feeding Operations Remain Largely Uncharacterized More Than 7 Years After Study Completed.”

Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Recap of the Past Week

- **Signed this week:** Two proposed rules regarding the Oil and Natural Gas New Source Performance Standards (NSPS).

Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 4/24/2018 9:42:07 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Harlow, David [harlow.david@epa.gov]
Subject: Re: Bill/Clint's Visit to RTP on 4/25--Agenda and Materials

P.s. OAQPS is asking that we keep these materials close and not distribute further (or post in the meeting invites)

On Apr 24, 2018, at 5:32 PM, Lewis, Josh <Lewis.Josh@epa.gov> wrote:

Materials for tomorrow. Also note plan for airport pickup

Begin forwarded message:

From: "South, Peter" <South.Peter@epa.gov>
Date: April 24, 2018 at 5:21:58 PM EDT
To: "Harnett, Bill" <Harnett.Bill@epa.gov>, "Koerber, Mike" <Koerber.Mike@epa.gov>, OAQPS WOPS <OAQPS_WOPS@epa.gov>, OAR Briefings <OAR_Briefings@epa.gov>
Cc: "Tsirigotis, Peter" <Tsirigotis.Peter@epa.gov>, "Koerber, Mike" <Koerber.Mike@epa.gov>, "Harnett, Bill" <Harnett.Bill@epa.gov>
Subject: Bill/Clint's Visit to RTP on 4/25--Agenda and Materials

I have attached the agenda and meeting materials in prep for Bill and Clint's visit to RTP tomorrow. Mike Koerber is planning to pick them up at the airport tomorrow morning at 9:40 am (Mike's cell phone number is Deliberative Process / Ex. 5) We will have binders available that will include all of the information attached below.

Thanks and feel free to call me with any questions.

Pete South
OAR/OAQPS/IO
U.S. EPA
office: 919 541-5359
cell: 919 599-7213

10:00 to 10:45

11:00 to 11:45

12:00 to 12:45

Bill

Clint

Deliberative Process / Ex. 5

Lunch—in EPA RTP cafeteria

1:00 to 1:45

2:00 to 2:45

3:00 to 3:45

4:00 to 4:30

NAEMS Update

4:30 to 5:00

Deliberative Process / Ex. 5

5:00 to 5:30

5:45

Deliberative Process / Ex. 5

Depart for Airport

<1_b_O3 transport 04_25_18.docx>

<0_RTP Visit final agenda 04_25_18.docx>

<1_a Landfills 04_25_18.DOCX>

<2_O3 Schedule Options Discussion 4_25_18.docx>

<3_Cache Valley PM2.5 04_25_18.docx>

<5_b_back2basics NAAQS review draft memo 04_25_18.docx>

<5_a_i_NAEMS EEM 04_25_18.docx>

<5_a_ii_OIG status of rec.pdf>

<6_b_Disposal Options Take Back 04_25_18.docx>

<4_Bases for Changing SSM Policy 4_25_18r.docx>

Message

From: DeLuca, Isabel [DeLuca.Isabel@epa.gov]
Sent: 3/27/2018 3:24:47 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Woods, Clint [woods.clint@epa.gov]
CC: Millett, John [Millett.John@epa.gov]
Subject: OAQPS items
Attachments: PM FFS Comms 3-26-18 cw edits.docx; Transport Guidance February 2018 Comm Plan_v6.docx; Animal Feeding Operations EEM QAPP Rollout Plan_v3.docx; Statement_Program and Fee Evaluation Strategy and Guidance for Clean Air Act Title V Operating PermitsV2.docx; Rollout Plan for Final SO2 Designations 3rdRound Citrus Countyv2 - 3-12-18.docx

There are a number of actions that are happening today through OAQPS. Attached are the comms plans, and I've pulled out the desk statements below as well. Please let me know if you have any questions or concerns.

Thanks,
Isabel

Deliberative Process / Ex. 5

3. **Animal Feeding Operations Emission Estimates Quality Assurance Plan:** Report, no signature. Posted at: <https://www.epa.gov/afos-air/draft-air-emissions-estimating-methodologies-animal-feeding-operations>
Desk Statement:

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Jackie Ashley - US EPA - Office of Air Quality Planning and Standards - 919-541-7664 – ashley.jackie@epa.gov

Message

From: Dominguez, Alexander [dominguez.alexander@epa.gov]
Sent: 4/22/2019 10:54:59 AM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: FW: The Morning Headlines from InsideEPA.com -- April 22, 2019

From: InsideEPA.com
Sent: Monday, April 22, 2019 6:54:56 AM (UTC-05:00) Eastern Time (US & Canada)
To: Dominguez, Alexander
Subject: The Morning Headlines from InsideEPA.com -- April 22, 2019

REDEFINING EPA: Overhauling an agency and its mission -- Complete coverage

April 22, 2019

Latest News

Industries Float Legal Defenses For CWA Rule, Urge EPA To Narrow Scope

Industry groups are offering legal defenses for EPA's proposal to narrow its Clean Water Act (CWA) jurisdiction standard compared to an Obama-era rule on the law's reach, but they are also urging the agency to restrict jurisdiction even further than planned by placing new limits on regulating "traditional navigable waters" (TNWs).

9th Circuit Orders EPA To Answer Objections To Chlorpyrifos Ban Reversal

A federal appellate court is ordering EPA to quickly respond to environmentalists' objections to former Administrator Scott Pruitt's reversal of an Obama-era proposed ban on the pesticide chlorpyrifos, an answer that would clear the way for critics of the decision to challenge the agency in courts on the merits of the reversal.

EPA's CCS Reversal In NSPS Could Face Hurdles From Technology Gains

A slew of environmentalists, legal experts and states are citing mounting evidence that carbon capture and storage (CCS) technology is becoming increasingly advanced, arguing that poses a major hurdle to EPA's attempt to no longer base its greenhouse gas targets for new coal plants on CCS with partial capture.

Draft EPA FY20 Guidance Floats Plans For New Water, Enforcement Metrics

Draft EPA guidance for implementing its pending fiscal year 2020 budget includes plans from the enforcement and water offices to craft and track an array of new compliance metrics they say will provide more details on the extent of environmental violations and other factors, which will lead to more-specific policy goals for core agency programs.

Democrats Urge 2020 Presidential Candidates To Prioritize Climate Change

Key Democratic lawmakers are urging their party's presidential candidates to make climate change a top issue in the 2020 election, compared to its lower-tier status in prior campaigns, arguing that would draw a sharp contrast with President Donald Trump and build a groundswell of public support for major climate mitigation policies.

EPA Urges Court To Reject Challenge To Mercury Inventory, Waivers

EPA is urging a federal appellate court to dismiss a suit brought by states and environmentalists seeking to strengthen the agency's June 2018 mercury inventory and repeal the categories of reporting waivers it included, arguing that its rule met requirements that Congress included in its reform of the Toxic Substances Control Act (TSCA).

Daily Feed

EPA finance chief notes workforce challenges

Chief Financial Officer Holly Greaves told an EPA advisory panel April 18 that rising employment costs combined with a limited budget makes maintaining an adequate workforce challenging.

EPA sends final AFO air reporting waiver for OMB review

Environmentalists are likely to sue over the final air reporting rule waiver for animal feeding operations once EPA issues it, based on their long-running claims that the exemption is unlawful.

After oral arguments, FERC seeks to clarify key NEPA misstatement

The commission says one of its attorneys “misspoke” regarding the commission’s stance that it cannot be deemed the “legally-relevant cause of downstream emissions” under NEPA when it lacks jurisdiction over the fuel distributor.

Ewire: Kentucky lawmaker sees no 'upside' in AOC coal mine visit

In today's Ewire: Rep. James Comer (R-KY) is warning his fellow Republicans against “picking on” Rep. Alexandria Ocasio-Cortez (D-NY) over coal issues and her Green New Deal climate plan.

Industries defend EPA policy easing air permitting requirements

A broad coalition of industry organizations in a new legal filing is backing an EPA policy that critics say will make it easier for companies to avoid onerous and expensive air permit reviews.

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Mailing address: 1919 South Eads Street, Suite 100, Arlington VA 22202

Telephone: 703-416-8500 or 1-800-424-9068

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Message

From: Harlow, David [harlow.david@epa.gov]
Sent: 6/25/2018 4:34:13 PM
To: Koerber, Mike [Koerber.Mike@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]
Subject: RE: Animal Feeding Operations EEM Schedule Rollout Plan_v2 (002).docx

Thanks for passing this along, Mike.

David S. Harlow
Senior Counsel
Immediate Office of the Assistant Administrator
Office of Air and Radiation, USEPA
WJC-N Room 5409K
1200 Pennsylvania Avenue NW
Washington, DC 20460
202-564-1233
Harlow.David@epa.gov

From: Koerber, Mike
Sent: Monday, June 25, 2018 12:15 PM
To: Woods, Clint <woods.clint@epa.gov>; Harlow, David <harlow.david@epa.gov>; Gunasekara, Mandy <Gunasekara.Mandy@epa.gov>; Dominguez, Alexander <dominguez.alexander@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>
Subject: FW: Animal Feeding Operations EEM Schedule Rollout Plan_v2 (002).docx

Deliberative Process / Ex. 5

Attached is a desk statement for the posting, along with a few Q&As.

Here is the website for the posting: (<https://www.epa.gov/afos-air/national-air-emissions-monitoring-study>) our

And here is what the posting will look like:

Deliberative Process / Ex. 5

Message

From: Woods, Clint [woods.clint@epa.gov]
Sent: 6/21/2018 11:27:06 AM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Fwd: Animal Feeding Operations EEM Schedule Rollout Plan_v2 (002).docx
Attachments: image003.jpg; ATT00001.htm; Animal Feeding Operations EEM Schedule Rollout Plan_v2 (002).docx; ATT00002.htm

For your awareness.

Deliberative Process / Ex. 5

Begin forwarded message:

From: "Koerber, Mike" <Koerber.Mike@epa.gov>
Date: June 20, 2018 at 10:21:03 AM EDT
To: "Woods, Clint" <woods.clint@epa.gov>, "Lewis, Josh" <Lewis.Josh@epa.gov>
Subject: FW: Animal Feeding Operations EEM Schedule Rollout Plan_v2 (002).docx

FYI – In response to the Sept 2017 OIG report (and commitments we made in response), we are moving forward with posting our schedule by the end of June – see note below for the actual web posting, as well as the attached paper. Please let me know if you have any questions.

Mike

From: Cortelyou-Lee, Jan
Sent: Wednesday, June 20, 2018 9:55 AM
To: Koerber, Mike <Koerber.Mike@epa.gov>
Cc: Dunkins, Robin <Dunkins.Robin@epa.gov>; Costa, Allison <Costa.Allison@epa.gov>
Subject: Animal Feeding Operations EEM Schedule Rollout Plan_v2 (002).docx

Hey Mike – as you know, by the end of June – we will post on the web (<https://www.epa.gov/afos-air/national-air-emissions-monitoring-study>) our schedule for next steps related to the National Air Emissions Monitoring Study which includes a schedule for completing draft emission estimating methods for AFOs.

Deliberative Process / Ex. 5

Senate Committee on Environment & Public Works
Hearing entitled, “Hearing on the Nominations of Michael Dourson, Matthew Leopold,
David Ross, and William Wehrum to be Assistant Administrators of the Environmental
Protection Agency, and Jeffery Baran to be a Member of the Nuclear Regulatory
Commission.”

October 4, 2017

Questions for the Record for Mr. William Wehrum

Ranking Member Carper:

1. For decades, both Republican and Democratic administrations alike have had written policies limiting White House contacts with agencies that have investigatory and enforcement responsibilities. These policies have recognized that even a simple phone call from the White House to an agency inquiring about or flagging a specific matter can upset the evenhanded application of the law. I recently learned that Devon Energy, a strong political supporter of Administrator Pruitt’s, informed the EPA just 5 days after Mr. Pruitt was sworn in as Administrator that it was no longer willing to install air pollution technology or pay a high penalty to EPA for its illegal air emissions of cancer-causing benzene and other chemicals. We also know that Trump family casinos, hotels and golf courses have been the subject of EPA enforcement actions for violations of the Clean Air Act and Clean Water Act.
 - a. Do you agree that it is essential that in making decisions, EPA’s OAR must be shielded from political influence and spared even the appearance of being subject to political influence or considerations?

If confirmed, I commit to work with Administrator Pruitt and his team to ensure strict compliance with all legal and ethical obligations.

- b. Will you commit to restricting communications between OAR and the White House staff regarding specific matters under the authority of OAR?

If confirmed, I commit to work with Administrator Pruitt and his team to ensure strict compliance with all legal and ethical obligations.

- c. Will you commit to ensuring the staff of OAR is familiar with those restrictions?

If confirmed, I commit to work with Administrator Pruitt and his team to ensure strict compliance with all legal and ethical obligations.

- d. Will you commit to advising this Committee within one week if any inappropriate communications from White House staff to OAR staff, including you, occur?

If confirmed, I commit to work with Administrator Pruitt and his team to ensure strict compliance with all legal and ethical obligations.

2. Recently, EPA conducted “anti-leaking” training for its employees¹. According to EPA sources, the briefing stated that “Prohibitions we will discuss do not refer to “Whistleblowing”. Agency employees have the right to make lawful disclosures to anyone, including, for example, management officials, the Inspector General, and/or the Office of Special Counsel. Employees may make disclosures to the EPA Office of the Inspector General through the EPA OIG Hotline at 888-546-8740.” This presentation evidently failed to note the rights of federal employees have to make disclosures to Congress.

5 U.S.C. § 7211, provides that: The right of employees, individually or collectively, to petition Congress or a Member of Congress or to furnish information to either House of Congress, or to a committee or Member thereof, may not be interfered with or denied. Pursuant to 5 U.S.C. § 2302(b)(8), it is a violation of federal law to retaliate against whistleblowers. That law states: Any employee who has authority to take, direct others to take, recommend, or approve any personnel action, shall not, with respect to such authority ... take or fail to take, or threaten to take or fail to take, a personnel action with respect to any employee or applicant for employment because of. ... (A) any disclosure of information by an employee or applicant which the employee or applicant reasonably believes evidences- (i) a violation of any law, rule, or regulation, or (ii) gross mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety, any disclosure to the Special Counsel, or to the Inspector General of an agency or another employee designated by the head of the agency to receive such disclosures, of information which the employee or applicant reasonably believes evidences a violation of any law, rule, or regulation... " In addition, pursuant to 18 U.S.C. § 1505, it is against federal law to interfere with a Congressional inquiry: Whoever corruptly, or by threats or force, or by any threatening letter or communication influences, obstructs, or impedes or endeavors to influence, obstruct, or impede the due and proper administration of the law under which any pending proceeding is being had before any department or agency of the United States, or the due and proper exercise of the power of inquiry under which any inquiry or investigation is being had by either House, or any committee of either House or any joint committee of the Congress.

- a. If you are confirmed, will you commit to protect the rights of all career employees in OAR to make lawful disclosures, including their right to speak with Congress?
- b. Will you commit to communicate employees’ whistleblower rights via email to all OAR employees within a week of being sworn in?

If confirmed, I will work closely with EPA Office of Administration and

¹ https://www.washingtonpost.com/politics/whitehouse/federal-employees-are-ordered-to-attend-anti-leaking-classes/2017/09/21/032b40d6-9edd-11e7-b2a7-bc70b6f98089_story.html?utm_term=.e2bfc5e54d95

Resources Management to ensure all OAR employees continue to apprised of their rights as federal employees.

3. In the wake of Hurricane Irma, at least 11 deaths and numerous injuries have been reported in Florida due to accidental carbon monoxide poisoning from gasoline-powered portable generators.² One additional death has also been reported in North Carolina, along with other injuries throughout the Southeastern United States.³ Many of these deaths and injuries could have been prevented had stronger safety standards been in place for portable gasoline generators. In November 2016, the U.S. Consumer Product Safety Commission (CPSC), following years of work on the issue, voted to issue a Notice of Proposed Rulemaking (NPRM) to implement a mandatory safety standard for portable generators.⁴ Since then, Administrator Pruitt and Acting CPSC Chairman Buerkle have separately opined that section 213 of the Clean Air Act precludes CPSC action.
- a. Section 213 of the Clean Air Act is intended to regulate emissions from non-road engines or vehicles when the EPA determines that such emissions “are significant contributors to ozone or carbon monoxide concentrations in more than 1 area which has failed to attain the national ambient air quality standards for ozone or carbon monoxide.” In your opinion, would the occasional indoor use of portable generators following a power outage be likely to be a significant contributor to ambient carbon monoxide concentrations in more than 1 area that has failed to attain the national ambient air quality standards for carbon monoxide? Why or why not?
 - b. There are currently no areas in the United States that have failed to attain the national ambient air quality standards for carbon monoxide, and this has been the case since 2010⁵. As a matter of law, could section 213 of the Clean Air Act be used to regulate carbon monoxide emissions due to the indoor use of portable generators if there are no areas in the United States that fail to attain the national ambient air quality standards for carbon monoxide? Why or why not?

I do not have experience with interpreting or applying CAA § 213 to these circumstances. If confirmed, I will work with Administrator Pruitt as needed to properly implement this section of the Act.

4. Your public financial disclosure material lists, among others, several clients such as the American Petroleum Institute and others that are trade or other associations that consist of individual member companies. For each such association or organization listed on your financial disclosure form, please provide a complete list of the individual companies and other entities that comprise its members.

² <http://www.miamiherald.com/news/weather/hurricane/article174097351.html> <http://www.sun-sentinel.com/news/weather/hurricane/sfl-carbon-monoxide-deaths-20170914-story.html>

³ <http://www.charlotteobserver.com/news/article173612361.html>

⁴ <https://www.federalregister.gov/documents/2016/11/21/2016-26962/safety-standard-for-portable-generators>

⁵ <https://www.epa.gov/green-book/green-book-carbon-monoxide-1971-area-information>

The trade associations listed in my financial disclosure are my clients and not their individual members. As such, I do not have current member lists for my trade association clients.

5. In addition to employees or representatives of the trade associations or organizations listed as your clients, have you met or otherwise communicated with employees or representatives of the companies that are members of the associations or organizations as part of your work for the client itself? If so, which ones?

The trade associations listed in my financial disclosure are my clients and not their individual members. I routinely meet with member companies, but do not keep comprehensive records of such contacts.

6. Your ethics agreement states that you “will not participate personally and substantially in any particular matter involving specific parties in which I know a former client of mine is a party or represents a party for a period of one year after I last provided service to that client, unless I am first authorized to participate, pursuant to 5 C.F.R. 2635.502(d).”
- a. Please provide a list of all such particular matters involving specific parties that you will either need to recuse yourself from or seek authorization to participate in. For each such particular matter, please also indicate whether you plan to seek authorization to participate.
 - b. If that list does not include particular matters involving the list of individual companies and other entities described in question 4, why not?
 - c. 5 C.F.R 2635.502(a) states that
“where an employee knows that a particular matter involving specific parties is likely to have a direct and predictable effect on the financial interest of a member of his household, or knows that a person with whom he has a covered relationship is or represents a party to such matter, and where the employee determines that the circumstances would cause a reasonable person with knowledge of the relevant facts to question his impartiality in the matter, the employee should not participate in the matter unless he has informed the agency designee of the appearance problem and received authorization from the agency designee in accordance with paragraph (d) of this section.”

Do you agree that your representation of numerous industry clients in litigation to repeal or weaken EPA regulations would cause a reasonable person with knowledge of the relevant facts to question your impartiality if you are confirmed and continue to participate either in the litigation or in an administrative action designed to accomplish the identical outcome – repeal or weakening of an EPA regulation – that the litigation sought to accomplish? Why or why not?

Attachment A is a list of particular matters involving specific parties to

which I believe my ethics agreement will apply. If confirmed, I will work closely with EPA ethics officials to understand and strictly comply with my ethical obligations.

7. Do you intend to participate in non-public meetings with your former clients or their member companies (as applicable) if you are confirmed, even if the meetings are about the repeal or weakening of the very same EPA regulations you sought, on behalf of those clients, to repeal or weaken through litigation? If so, please explain why this would not cause a reasonable person with knowledge of the relevant facts to question your impartiality in the matter at hand.

If confirmed, I will work closely with EPA ethics officials to understand and strictly comply with my ethical obligations.

8. Your Ethics Agreement also states that you will either recuse yourself from or seek authorization to participate in “any particular matter involving specific parties in which I know the law firm [Hunton & Williams] is a party or represents a party.” Please provide a list of all the EPA-related particular matters involving specific parties in which Hunton & Williams is a party or represents a party, and indicate whether you plan to seek authorization to participate in each such matter.

I do not have a list of all particular matters involving specific parties in which Hunton & Williams is a party or represents a party. If confirmed, I intend to ascertain Hunton’s involvement on a case-by-case basis before becoming involved in any particular matter involving specific parties.

9. On February 28, 2017, President Trump directed EPA and the Army Corps to review and possibly rescind or repeal the Clean Water Rule in Executive Order 13776. EPA recently ended the public comment process on the first step of a two-step process to repeal the rule and replace it with a rule that will protect far fewer sources of drinking water. Individuals with first-hand knowledge of the process EPA utilized to prepare its have informed my staff that:
- a) When EPA first submitted the proposed repeal rule to OMB, the draft stated that the agency would undertake a new cost-benefit analysis as part of the second step of its process.
 - b) OMB interpreted EPA’s first proposal to mean that the rule’s repeal would not avoid any costs to industry or have any economic impact at all. EPA’s political staff then directed the career staff to undertake a new economic analysis. In response to this direction from OMB, EPA career staff reportedly changed the table included in the 2015 rule to a) reflect 2016 dollars instead of 2014 dollars, b) convert “annual costs incurred” under the Clean Water Rule to “annual costs avoided” due to its repeal and c) convert “annual benefits gained” under the Clean Water Rule to “annual benefits forgone” due to its repeal. This new table was sent to OMB on June 8, 2017.

- c) OMB correctly concluded from EPA's June 8 submittal that repealing the rule would cost more in lost benefits than it would save industry in compliance costs. On June 13, 2017, presumably to avoid such an admission on the part of EPA, EPA career staff were verbally directed by political staff to solve this 'problem' by simply deleting the majority of the benefits of the rule from the table and re-submitting it to OMB, which they did⁶.

The direction that was reportedly provided to the EPA career staff to make the various revisions to what was submitted to OMB was verbal, not written. If you are confirmed, do you commit to ensure that career staff in OAR will receive appropriately documented, rather than verbal, direction from political officials before they take action? If not, why not?

If confirmed, I will work closely with EPA ethics officials to understand and strictly comply with my ethical obligations.

10. As Attorney General of Oklahoma, Administrator Pruitt copied and pasted materials sent to him by industry onto his own letterhead and sent them to EPA. Similarly, when you last served in EPA's air office, language drafted by your old law firm found its way into an EPA mercury regulation that you helped write. You also repeatedly prevented EPA employees from verifying the public health benefits of reducing mercury exposure.
- a. If confirmed, do you commit that you will not allow industry to exert an undue influence on any of the regulatory and policy efforts you will be charged with leading? If not, why not?
- b. Do you commit not to censor or exclude the dedicated and knowledgeable career EPA staff? If not, why not?

If confirmed, I will work closely with EPA ethics officials to understand and strictly comply with my ethical obligations.

11. Do you agree to provide complete, accurate and timely responses to requests for information submitted to you by any Member of the Environment and Public Works Committee? If not, why not?

Administrator Pruitt has made responsiveness to Congress an important priority. The 2800 pages of EPA responses provided to Members of the Environment and Public Works Committee on display at the nomination hearing is a testament to this commitment. Accordingly, I will continue to be a part of EPA's transparent and responsive culture.

⁶ https://www.epa.gov/sites/production/files/2017-06/documents/economic_analysis_proposed_step1_rule.pdf
See Table 1

12. Recently, EPA announced that Administrator Pruitt would be publishing brief summaries of his calendars biweekly, after dozens of Freedom of Information Act requests for this information as well as a March request by me and my colleagues that he do so. During the Obama Administration, the Administrator, regional Administrators and all those serving in confirmed roles published their calendars daily⁷. If you are confirmed, will you commit to publishing your calendars daily? If not, why not?

If confirmed, I will make my calendar available on a timely basis.

13. In 2006, when you were last nominated to lead the Office of Air and Radiation (OAR), the then-Bush Administration requested for FY 2007 \$1.33 billion (adjusting to 2017 dollars) for State and Tribal Assistance Grants, of which \$250 million (in 2017 dollars) was for Air and Radiation programs. Earlier this year, the Trump Administration requested for FY 2018 \$597 million, of which \$168 million was for Air and Radiation programs. This is more than 50% less for the STAG program in general, and almost 1/3 less for Categorical Grants for OAR programs.
- a. Did you support the request for FY 2007, and do you support the request for FY 2018? Why, or why not?
 - b. If you support both the requested levels in FY 2007 and FY 2018, why do you believe that a 1/3 cut to the funding levels in FY 2018 from FY 2017 levels is appropriate?

If confirmed, I will manage OAR's programs within the authorities and budget provided by Congress, including STAG grants.

14. How many legal cases have you filed, or joined others in filing against the EPA, since leaving the agency? Please provide a full list with the outcome of each case, including those cases in which the court disagreed with your argument, agreed with your argument, and those in which the court refused to hear the matter.

I believe that I have been involved in five cases against EPA that have been decided: (1) a challenge to EPA's E15 waiver (dismissed on standing); (2) a challenge to EPA's misfueling mitigation rule (dismissed on standing); (3) a challenge to EPA's most recent PM2.5 NAAQS (petition denied); (4) a challenge to the Wise Co., TX nonattainment area designation for the 2008 ozone NAAQS (petition denied); and (5) a challenge to CSAPR (mixed result). I continue to search my files and will update this answer if I find more cases. In addition, Attachment 1 is a table listing all of my pending cases against EPA.

15. You've represented industry in at least thirty-one cases against the EPA since you left the agency. Can you name one Clean Air Act regulation that was promulgated by the Obama Administration – not a voluntary or grant program – that you do support and why? If you support more than one, please name these as well.

⁷ <https://yosemite.epa.gov/opa/admpress.nsf/Calendars?OpenView>

I represent clients in private practice. It is my legal ethical duty to zealously represent their interests.

16. Delaware is already seeing the adverse effects of climate change with sea level rise, ocean acidification, and stronger storms. While all states will be harmed by climate change, the adverse effects will vary by state and region. Would you comment on why it is imperative that we have national standards to reduce carbon pollution? If you do not believe it is imperative, why not?

If confirmed, my primary responsibility will be to faithfully implement the Clean Air Act, including authorities and restrictions applicable to greenhouse gases.

17. In a *per curiam* opinion, the U.S. Circuit Court of Appeals for the District of Columbia affirmed the Endangerment Finding and the U.S. Supreme Court declined to issue a writ of certiorari on the D.C. Circuit's decision. The Endangerment Finding set in motion EPA's legal obligations to set greenhouse gas emissions standards for mobile and stationary sources, including those established by the Clean Power Plan in August 2015.⁸ During an exchange with Senator Gillibrand during Administrator Pruitt's confirmation hearing before the Environment and Public Works Committee, he stated, "I believe that the EPA, because of the *Mass v. EPA* case and the endangerment finding, has obligations to address the CO₂ [carbon dioxide] issue."

- a. Do you agree with Administrator Pruitt's statement?
- b. If the Clean Power Plan is withdrawn, and if confirmed, how will you lead the agency to fulfill its legal obligations to address climate change?

I agree with Administrator Pruitt. If confirmed, my primary responsibility will be to faithfully implement the Clean Air Act, including authorities and restrictions applicable to greenhouse gases.

18. EPA policy prohibits the use of non-EPA e-mail accounts and instructs employees to: "not use any outside e-mail system to conduct official Agency business. If, during an emergency, you use a non-EPA e-mail system, you are responsible for ensuring that any e-mail records and attachments are saved in your office's recordkeeping system." When last at the EPA, did you ever use personal email to conduct official EPA business? Did you ever use an email alias to conduct official EPA business when you last served at the agency? Do you commit that if confirmed, you will not use an email alias or use personal email addresses to conduct EPA business?

I do not recall using personal e-mail to conduct official business when last at EPA. I did not use an e-mail alias to conduct official business when last at EPA. If

⁸ <https://www.epa.gov/climatechange/us-court-appeals-dc-circuit-upholds-epas-action-reduce-greenhouse-gases-under-clean>

confirmed, I intend to use my EPA e-mail account to conduct official business.

19. Clean car standards save consumers money at the pump and help reduce oil imports. Automakers are complying with vehicle standards ahead of schedule. If confirmed, will you commit to support, defend and enforce EPA's current programs to address greenhouse gas emissions from vehicles?

If confirmed, my primary responsibility will be to faithfully implement the Clean Air Act, including authorities and restrictions applicable to greenhouse gases.

20. For the most part, patients and their families only participate in scientific trials and studies once they know their privacy - and any resulting health-related information - will remain confidential and secure. If confirmed, do you commit to respecting confidentiality agreements that exist between researchers and their subjects? Will you protect the health information of the thousands of people that have participated in health studies in the past?

If confirmed, I will comply with appropriate standards to continue the protection of sensitive or confidential information.

21. In December 2007, President Bush's EPA proposed to declare greenhouse gases as a danger to public welfare through a draft Endangerment Finding, stating, "The Administrator proposes to find that the air pollution of elevated levels of greenhouse gas (GHG) concentrations may reasonably be anticipated to endanger public welfare... Carbon dioxide is the most important GHG (greenhouse gas) directly emitted by human activities, and is the most significant driver of climate change."⁹

- a. Do you agree with these statements, if not, why not?
- b. Did you participate in drafting the proposed Bush Endangerment Finding document in any way? If so, how?

I believe that the climate is changing and that anthropogenic emissions contribute to the change. I did not participate in drafting the proposed Bush Endangerment Finding document.

22. When you last served in the EPA OAR office, did the EPA ever propose to disapprove state mercury emissions control programs that were stronger than the Clean Air Mercury? If so, please provide how many times this happened and what your role was in these actions. Please also provide how this fits in Administrator Pruitt's views of "cooperative federalism."

I do not recall that EPA proposed to disapprove any state program proposed

⁹https://insideclimatenews.org/sites/default/files/2007_Draft_Proposed_Endangerment_Finding.pdf

pursuant to the Clean Air Mercury Rule.

23. The Rule of Law Defense Fund is an affiliate of the Republican Attorneys General Association. Have you ever contributed any money or time to the Rule of Law Defense Fund?

No.

24. Have you ever contributed any money or time to two election fundraising groups, Oklahoma Strong PAC and Liberty 2.0 PAC?

No.

25. How many legal cases have you filed, or joined others in filing, that involved the Renewable Fuel Standard, biofuels or biodiesel since leaving the EPA? Please provide a summary of your argument and the outcome of each case, including those cases in which the court disagreed with your argument.

I was counsel of record on three cases related to the RFS (principal clients are included in parentheses): (1) a challenge to EPA's E15 waiver (API and the Grocery Manufacturers Association); (2) a challenge to EPA's misfueling mitigation rule (API); and (3) a challenge to Minnesota's B10 mandate (API, the Auto Alliance, the American Fuel and Petrochemical Manufacturers).

26. Have you ever argued in court, or been part of a legal argument, that the Renewable Fuel Standard, as being implemented by the EPA, will lead to an increase in the overall demand for corn, which will lead to an increase in the price of corn? If so, please cite the case and the data used for the argument.

I am not authorized by my clients to discuss relevant cases.

27. In your 2005 EPW confirmation hearing, you answered a question, with the following, "I was barred for 1 year starting September 29, 2001, from participating in the particular matters listed in Attachment A of the memorandum and from taking official action on any particular matter in which my former clients, listed in Attachment B, were or represented a party to the matter. The ethics memorandum also addressed the general rulemakings on which I had represented various clients... With respect to the ethylene MACT rule and the semiconductor MACT rule, he [Kenneth J. Wernick, EPA's then Alternate Agency Ethics Official] concluded that it would be prudent for me not to handle these matters during my first year at EPA. Subsequent to that time, there was no bar to my participating as an EPA official in these rulemakings... In accordance with the ethics memorandum referenced above, I refrained for 1 year starting September 29, 2001, from participating in the particular matters identified by the memorandum and from taking official action with respect to any particular matter involving the entities listed in the memorandum. I also did not participate in the

ethylene and semiconductor MACT rules in my first year at EPA.”¹⁰

¹⁰ <https://www.gpo.gov/fdsys/pkg/CHRG-109shrg42275/pdf/CHRG-109shrg42275.pdf>

- a. Please provide a full list of the cases you filed, joined others in filing, or participated in some way related to the ethylene and semiconductor MACT rules prior to you joining the EPA in 2001. Please include any other work that you may have done while employed at Latham and Watkins – or any other organization – prior to coming to the EPA in 2001 that was related to the ethylene and semiconductor MACT rules.
- b. What led Kenneth J. Wernick, EPA's then Alternate Agency Ethics Official to conclude it wouldn't "be prudent" for you to handle the ethylene MACT rule and the semiconductor MACT rule during your first year at EPA?
- c. In 2001, what other issues and rulemakings did you have to recuse yourself for one year to meet the ethical standards set by the EPA?

Prior to and upon joining EPA in 2001, I sought, obtained, and strictly followed advice from EPA's ethics officials as to my ethical obligations related to my prior work in private practice. My prior ethics agreement is a matter of public record.

28. How many legal cases have you filed, or joined others in filing, since leaving the EPA that challenged rules the Obama EPA had to re-write because the courts said the original rules written by the Bush Administration were illegal?

To my knowledge, I have been involved in three cases challenging rules that EPA issued on remand from court decisions on Bush Administration air rules.

29. On July 8, 2003, Jeff Holmstead, then-EPA Assistant Administrator for Air and Radiation provided the following remarks in his written testimony to the House Energy and Air Quality Subcommittee of the Energy and Commerce Committee, "Clear Skies would also reduce mercury emissions from power plants. EPA is required to regulate mercury because EPA determined that mercury emissions from power plants pose an otherwise unaddressed significant risk to health and the environment, and because control options to reduce this risk are available."¹¹ At the time Mr. Holmstead provided these remarks, you were serving as his chief counselor within the EPA OAR office.
 - a. Did you agree at the time with Mr. Holmstead's determination, if so why? If not, why not?
 - b. Did you ever provide legal counsel to Mr. Holmstead, or others within the EPA, that helped provided the legal basis for these remarks?
 - c. Do you agree with Mr. Holmstead's remarks today?

I believe Mr. Holmstead was referring to Administrator Browner's 1999

¹¹ https://archive.epa.gov/ocir/hearings/testimony/108_2003_2004/web/pdf/2003_0708_jh.pdf

“appropriate and necessary” determination, which was still in effect at the time. That determination, as amended in the Mercury and Air Toxics Rule, was determined to be illegal by the US Supreme Court.

30. On July 8, 2003, Jeff Holmstead, then-EPA Assistant Administrator for Air and Radiation provided the following remarks in his written testimony to the House Energy and Air Quality Subcommittee of the Energy and Commerce Committee:
“Mercury, a potent toxin, can cause permanent damage to the brain and nervous system, particularly in developing fetuses when ingested in sufficient quantities. People are exposed to mercury mainly through eating fish contaminated with methylmercury... EPA estimates that 60% of the mercury falling on the U.S. is coming from current man-made sources. Power generation remains the largest man-made source of mercury emissions in the United States...Mercury that ends up in fish may originate as emissions to the air. Mercury emissions are later converted into methylmercury by bacteria. Methylmercury accumulates through the food chain: fish that eat other fish can accumulate high levels of methylmercury”.¹² At the time Mr. Holmstead provided these remarks, you were serving as his chief counselor within the EPA OAR office.

- a. Did you have any involvement in the drafting of these remarks? If so, what was your involvement?
- b. Did you agree at the time with Mr. Holmstead’s remarks, if so why? If not, why not?
- c. Do you still agree with Mr. Holmstead’s remarks today? If not, why not?

I do not recall being involved in drafting Mr. Holmstead’s remarks. I believe that, for the most part, mercury emissions from power plants are dispersed widely in the global atmosphere. I believe that global mercury emissions inventories have significantly changed since my prior time at EPA. Therefore, I cannot speak to his comments related to domestic and global emissions inventories. I believe his comments about the movement and transformation of mercury in the environment are correct.

31. In the *White Stallion Energy Center v. EPA*, February 2012, industry argued, “the record does not support EPA’s findings that mercury, non-mercury HAP metals, and acid gas HAPs [hazardous air pollutants] pose public health hazards.”¹³ Do you agree with this statement? Did you have any involvement with this case, if so, please explain.

I believe that comments were submitted to the record in this rulemaking demonstrating significant flaws in EPA’s exposure and risk assessment. I was not counsel of record in this case.

¹² https://archive.epa.gov/ocir/hearings/testimony/108_2003_2004/web/pdf/2003_0708_jh.pdf

¹³ <https://www.cadc.uscourts.gov/internet/opinions.nsf/284AC47088C07D0985257C8B004F0795/%24file/12-1100-1488346.pdf>

32. On April 17, 2012, Dr. Jerome Paulson, Chair, Council on Environmental Health, American Academy of Pediatrics, testified before the EPW Committee, stating, “Methyl mercury causes localized death of nerve cells and destruction of other cells in the developing brain of an infant or fetus. It interferes with the movement of brain cells and the eventual organization of the brain... The damage it [methylmercury] causes to an individual’s health and development is permanent and irreversible. ... There is no evidence demonstrating a “safe” level of mercury exposure, or a blood mercury concentration below which adverse effects on cognition are not seen. Minimizing mercury exposure is essential to optimal child health.”¹⁴

- a. Do you agree with the American Academy of Pediatrics’ finding on the importance of minimizing mercury exposures for child health? If not, please cite the scientific studies that support your disagreement.
- b. Do you agree the record supports EPA’s findings that mercury, non-mercury hazardous air pollutant metals, and acid gas hazardous air pollutants emitted from uncontrolled power plants pose public health hazards? If not, why not?

I am not familiar with Dr. Paulson’s testimony. I believe that comments were submitted to the record in this rulemaking demonstrating significant flaws in EPA’s exposure and risk assessment.

33. On July 8, 2003, Jeff Holmstead, then-EPA Assistant Administrator for Air and Radiation provided the following remarks in his written testimony to the House Energy and Air Quality Subcommittee of the Energy and Commerce Committee, “We have not developed methodologies for quantifying or monetizing all the expected benefits of Clear Skies... These estimates [for Clear Skies] do not include the many additional benefits that cannot currently be monetized but are likely to be significant, such as human health benefits from reduced risk of mercury emissions, and ecological benefits from improvements in the health of our forests, lakes, and coastal waters.”¹⁵ At the time Mr. Holmstead provided these remarks, you were serving as his chief counselor within the EPA OAR office.

- a. Did you have any involvement in the drafting of these remarks? If so, what was your involvement?
- b. Did you agree at the time with Mr. Holmstead’s remarks, if so why? If not, why not?
- c. Do you agree with Mr. Holmstead’s remarks today that it is currently difficult, or impossible, to monetize the reduced risk of human health and ecological benefits from reducing mercury emissions from power plants? If so, please explain. If not, why not?

¹⁴ https://www.epw.senate.gov/public/_cache/files/4/3/4324fd62-dc89-4820-bd93-ff3714fcb30/01AFD79733D77F24A71FEF9DAFCCB056.41712hearingwitness testimony paulson.pdf

¹⁵ https://archive.epa.gov/ocir/hearings/testimony/108_2003_2004/web/pdf/2003_0708_jh.pdf

I do not recall being involved in drafting Mr. Holmstead's testimony. I believe that EPA was not able in 2003 to monetize all benefits associated with reducing mercury emissions. I do not know the current state of EPA's knowledge.

34. In 2005 GAO report that reviewed EPA's cost-benefit analysis for the Clean Air Mercury Rule, which you have testified you were heavily involved in writing, GAO identified, "four major shortcomings in the economic analysis underlying EPA's proposed mercury control options that limit its usefulness for informing decision makers about the economic trade-offs of the different policy options."¹⁶

- a. Can you explain the cost-benefit analysis used for the proposed Clean Air Mercury Rule and why it was used?
- b. Can you explain why the GAO found short-comings with this approach?
- c. Do you agree that co-benefit pollution reductions should be considered when EPA is quantifying the benefits and costs of regulations? If not, why not?
- d. While you were at EPA, did the agency ever use co-benefits to justify a clean air rule and has this approach ever been used in the past?

I do not recall being involved in preparing the cost-benefit analysis for the Clean Air Mercury Rule. If confirmed, I intend to address the question of how co-benefits should be considered in cost-benefit analyses. I cannot prejudge the outcome because any such analysis would be an integral part of informal legislative rulemaking.

35. You were substantially involved in EPA's proposal and adoption of the Clean Air Mercury Rule and accompanying Delisting Rule. In 2005, for your EPW confirmation hearing you were asked the following question for the record: "With regard to trading of mercury, in your view, would it have been legally acceptable for EPA, taking into account the requirements of the Clean Air Act, to propose and adopt a facility specific mercury MACT that did not allow trading?" You answered, "After considering the utility unit emissions that would remain following imposition of the requirements of the Act, EPA determined that it was neither appropriate nor necessary to regulate utility units under section 112 of the Clean Air Act. Once EPA made that determination, it would not have been legally appropriate for EPA to issue a MACT standard." Three years later, the D.C. Circuit vacated the EPA's decision to delist power plants as a source under Section 112. Six years later under the Obama Administration, the EPA issued the Mercury and Air Toxics Rule to address mercury and air toxic emissions from power plants under the Section 112 of the Clean Air Act.

¹⁶ <http://www.gao.gov/products/GAO-05-252>

- a. Did you disagree with the court's ruling and legal reasoning against the EPA's actions while you were at the agency on mercury and air toxic power plant emissions? Do you continue to disagree today?
- b. Do you still hold the position that it is not "appropriate nor necessary" for the EPA to regulate utility units under Section 112 of the Clean Air Act and therefore, still agree it is not legally appropriate for EPA to issue a MACT standard, as the EPA did through the Mercury and Air Toxics Standard? If so, please explain.
- c. If you do not agree that EPA has met the "necessary and appropriate" criteria found in Section 112(n), what is your understanding of what that would mean for the Mercury and Air Toxics Rule?

I respect the court's decision with regard to the Clean Air Mercury Rule. I also respect the US Supreme Court's determination that the "appropriate and necessary" finding relied upon in the Mercury and Air Toxics Rule was illegal.

36. The US Supreme Court has expressly declined to consider whether EPA should have chosen some other mechanism "under section 112" in regulating power plant mercury and all the other HAPs emitted by the industry. What is your position on that precedent?

The Supreme Court chooses which areas they should consider providing judgement on when issuing decisions and which areas they decline to consider. I cannot infer the intent of the court from their decision not to consider this one specific issue.

37. Do you agree that the EPA's recent consideration of the costs of the Mercury and Air Toxics Rule shows that the agency has met the "necessary and appropriate" criteria Congress provided under 112(n) to direct the EPA to regulate power plant mercury (and other air toxic) emissions under Section 112, and more specifically under Section 112(d)? If not, why not?

If confirmed, I likely will be involved in assessing this question. I cannot prejudge the outcome.

38. The Edison Electric Institute (EEI), the association that represents all U.S. investor-owned electric companies, has told my staff that, to their knowledge, about five facilities received an approval from the EPA to operate for up to an additional year, which was through April 2017. According to EEI, to their knowledge all of their member companies have fully implemented the Mercury and Air Toxics Standard Rule. EPA staff has reported to my staff something similar. The Mercury and Air Toxics Rule protects our children from harmful mercury and air toxics pollution; and by industry accounts is already being met with technology that is already bought, paid for and running on almost all our power plants.

- a. Do dispute reports that nearly all covered facilities are already in compliance with the Mercury and Air Toxics Standard? If so, please explain.
- b. According to a recent report by Bloomberg New Energy Finance Report and the Business Council for Sustainable Energy, “consumers now pay 3% less per kilowatt-hour for electricity than in 2007.”¹⁷ This means the near universal compliance of the Mercury and Air Toxics Rule has been achieved without significant impacts to electricity reliability or affordability, in fact electricity prices have gone down. Do you agree? If not, why not?
- c. Even though industry has achieved near universal compliance with the Mercury and Air Toxics Standards and electricity prices have gone down, not up, Administrator Pruitt is currently reviewing whether it is “appropriate and necessary” to issue the standards in the first place. Do you agree that the EPA should be conducting this review, if so, why?
- d. If the EPA determines the agency has not met the “necessary and appropriate” criteria found in Section 112(n), and revokes the Mercury and Air Toxics Rule, what does that mean for all the pollution control technology that has been bought, paid for and running on our power plants helping the industry be in full compliance of the rule?
- e. When you were last at the EPA, or after, do you know of any instances when a power plant bought and installed air control technology and decided not to run the technology? If so, please explain the instance. Please include in your explanation if there were any impacts to downwind states or to air pollution levels.

If confirmed, I likely will be involved in assessing the question of how to appropriately respond to the US Supreme Court’s remand of the MATS “appropriate and necessary” determination. I cannot prejudge the outcome of that assessment. I will note that MATS imposed substantial costs on electric power generators. The fact that power prices have declined in recent years does not necessarily mean that MATS did not impose substantial incremental costs.

39. In a 2016 Law 360 article, you are quoted as saying, “The reason this [the Mercury and Air Toxics Standards Rule] was such a big issue for us is because by EPA’s own analysis, if you look at the benefits generated by the hazardous air pollutant reductions this rule would achieve, the costs vastly outweigh the benefits. So from our perspective, it’s a regulation that made no sense and wasn’t justified.”¹⁸ In April 2017, the EPA asked the D.C. Circuit Court of Appeals to delay oral arguments scheduled the Mercury and Air Toxics Standards (MATS) as it reviews the rule.

¹⁷ <http://www.bcse.org/wp-content/uploads/2017-Sustainable-Energy-in-America-Factbook-Executive-Summary.pdf>

¹⁸ <https://www.law360.com/articles/742955/environmental-group-of-the-year-hunton-williams>

- a. It is clear from this statement you already have a formed view of the validity of the Mercury and Air Toxics Standard going into the agency. Will you commit to this Committee that you will recuse yourself from the review and any possible rewriting of the Mercury and Air Toxics Rule? If not, why not?
- b. Do you continue to believe the Mercury and Air Toxics Standards is a regulation that made no sense and wasn't justified? If so, why?

The quantifiable monetized benefits of the HAP reductions predicted to occur under MATS measured only a few million dollars. I understand that EPA has recalculated the benefits attributable to MATS in response to the Supreme Court remand. I am not familiar with the new estimates. If confirmed, I intend to consider them objectively.

- 40. Will you commit, that if confirmed, you will not act to weaken the Mercury and Air Toxics Standards, if not, why not?

I cannot prejudge any decision that might be made by EPA if I am confirmed.

- 41. This year, you represented the American Petroleum Institute as an intervenor in defense of Administrator Pruitt's 90-day stay of oil and gas pollution standards, which the D.C. Circuit found violated the Clean Air Act. In my office, you refused to recuse yourself from participating in this rule, is that still true and how do you justify that, if confirmed, you will come into the EPA as impartial regulator as it relates to this issue? Do you agree with the court's decision, and why not?

Comprehensive rules of ethics govern the transition from private practice to government service. If confirmed, I will work closely with EPA ethics officials to understand and strictly comply with my ethical obligations.

- 42. Section 109 of the Clean Air Act is very clear. It requires EPA to review the NAAQS for six common air pollutants including ground-level ozone, particulate matter, sulfur dioxide, nitrogen dioxide every 5 years. The Clean Air Act requires EPA to set these standards that "are requisite to protect the public health," with "an adequate margin of safety," and secondary standard necessary to protect public welfare.
 - a. If confirmed, will you continue to hold to the five-year National Ambient Air Quality Standards review time period that the Clean Air Act requires of the EPA?
 - b. The science was clear that the 2008 ozone standard was not protecting public health, so EPA was required to Act. Is that not your understanding of the Clean Air Act?
 - c. If confirmed, will you commit to not further delay the implantation of the 2015 ozone NAAQS? If not, why not?

- d. Do you agree with Justice Scalia's opinion in *Whitman v. American Trucking Associations* that it is "fairly clear that [the Clean Air Act] does not permit the EPA to consider costs in setting the standards" and if so, will you commit not to include consider costs when setting the National Ambient Air Quality Standards? If you do not agree, why not?

If confirmed, I will endeavor to meet all statutory deadlines. I am not familiar with the record for the 2015 ozone NAAQS decision, so cannot comment on the decision to change the standard. I respect all US Supreme Court decisions.

43. In 2006, while you served as Acting Assistant Administrator for Air, the EPA proposed to eliminate lead as a criteria pollutant under the Section 109 Clean Air Act National Ambient Air Quality Standard (NAAQS) process. Did you have any involvement in this proposal? If so, please explain.

Yes, I was involved in developing that proposal. CAA § 108(a)(1)(B) states that ambient levels of a criteria pollutant should "result[] from numerous or diverse mobile or stationary sources." Information at the time indicated that there were few industrial sources of lead emissions and that lead emissions from mobile sources had been virtually eliminated. The proposal asked for comment on whether lead continued to meet the § 108(a)(1)(B) criterion.

44. Like you, I am an avid runner. In Delaware during the summer, we often have code orange days warning about the high levels of ozone for that day. Much of Delaware's ozone pollution is coming across the state boundary from upwind states.

- a. Can you describe how high levels of ozone could damage my lungs if I were to take a long run during a code orange day?
- b. Do you agree that ground-level ozone is a dangerous pollutant that causes respiratory and cardiovascular harm? If not, on what basis do you disagree?
- c. If confirmed, how would you direct states to work together to reduce ozone pollution?

Inhaling too much ozone can cause a wide range of adverse cardiovascular effects. CAA §§ 110(a)(2)(D) and 126 are designed to address interstate transport (i.e., emissions from upwind states that significantly contribute to downwind nonattainment).

45. Clean Air Act section 110(a)(2)(D)(i)(I), also known as the "Good Neighbor" provision, requires that state implementation plans to address air pollution "contain adequate provisions prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts

which will contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard.” Under this provision of the Clean Air Act, “[w]henver the Administrator finds that the applicable implementation plan for any area is substantially inadequate . . . to mitigate adequately [] interstate pollutant transport . . . or to otherwise comply with any requirement of this chapter, the Administrator shall require the State to revise the plan as necessary to correct such inadequacies.”

- a. Do you support the “Good Neighbor Provision” in the Clean Air Act and agree that this provision does not “encroach upon state sovereignty”? If not, why?
- b. If confirmed, do you commit to fully apply and enforce the Good Neighbor provision?

CAA § 110(a)(2)(D) describes one of many elements that must be included in an approval State Implementation Plan. My hope is that more states address this obligation in the first instance so that US EPA does not need to make findings of substantial inadequacy. If confirmed, my goal is to faithfully implement all aspects of the Clean Air Act.

46. Currently, under the Clean Air Act section 110(a)(2)(D)(i)(I), also known as the “Good Neighbor” provision, Delaware has sent four petitions to the EPA that identify facilities in other states that are emitting air pollution that are significantly contributing to Delaware’s air quality and impacting Delaware’s ability to maintain or be in attainment for the 2008 national ambient air quality standards (NAAQS) for ozone and the 2015 ozone NAAQS. The petitions are for: 1) Brunner Island facility's electric generating units located near York, Pennsylvania; 2) Homer City Generating Station's electric generating units located in Indiana County, Pennsylvania; 3) Harrison Power Station's electric generating units located near Haywood, Harrison County, West Virginia; and 4) Conemaugh Generating Station's electric generating units located in Indiana County, Pennsylvania. In addition, Maryland has filed a petition that requests EPA make a finding that 36 electric generating units located in the states of Indiana, Kentucky, Ohio, Pennsylvania, and West Virginia are emitting air pollutants that significantly contribute to nonattainment or interfere with maintenance of the 2008 and the 2015 ozone NAAQS in Maryland. The EPA has granted itself six months extension on every petition and has done nothing after that. All of the extensions have long since expired.

- a. If confirmed, will you commit to promptly act on Good Neighbor petitions so states, like Delaware and Maryland, can protect their citizens from upwind pollution in neighboring and distant states? If not, why not?
- b. If confirmed, will you support, defend and enforce EPA’s Good Neighbor provisions to address air pollution that crosses state borders? If not, why not?
- c. In some of these situations, like the Harrison Power Station near Haywood in West Virginia, the power plant in question has the needed technology on the

facility to help reduce ozone pollution in downwind Delaware and West Virginia ratepayers are already paying for the technology, but the pollution control isn't running. If confirmed, what will you do to ensure pollution control technology already on facilities runs to ensure downwind states have clean air?

- d. If confirmed, will you fully implement the Cross State Air Pollution Rules?
- e. If the Mercury and Air Toxics Rule is revoked, do you expect there will be an increase in upwind ozone and particulate pollution and have an impact on downwind states? If so, please explain. If not, why?

I think your question relates to CAA § 126 and not to § 110(a)(2)(D). I am not familiar with the specific petitions described in this question. But, I will note that CSAPR and the CSAPR update rule were intended to address interstate transport under § 110(a)(2)(D), such that there should not be a need or justification for § 126 petitions addressing the same plants, pollutants, and standards. If confirmed, I will endeavor to meet all CAA deadlines and my goal will be to faithfully implement all aspects of the CAA.

47. Just last month, you argued against an Obama Administration Occupational Safety and Health Administration indoor air rule that protects construction workers against silica dust, a type of dust that is linked to cancer and lung disease. During your arguments, you are quoted as saying, "People are designed to deal with dust — people are in dusty environments all the time, and it doesn't kill them,"¹⁹ The American Industrial Hygiene Association has stated that delaying the full enforcement of this rule will put – and this is their words, quote "2.3 million workers at greater risk to exposure, especially the construction industry — the backbone of our economy"

- a. Please provide the scientific studies that provided the basis for your argument in this case.
- b. When you stated "people are designed to deal with dust," what did you mean by that statement?
- c. When you were last in the EPA, did you ever work on a rule was deemed later to ignore all of the science dealing with particle matter pollution?
- d. Do you agree that there is robust science linking small particle pollution to negative health impacts, even death? If so, why is the science here different than for silica pollution?

The silica case dealt with the unique toxicological properties of silica and not with the pollutant "particulate matter" that is regulated by EPA. The quote in this question was taken out of the context of a broader argument related to

¹⁹ <https://www.eenews.net/greenwire/stories/1060061731/search?keyword=silica>

the question of whether there is an exposure threshold for respirable silica below which significant adverse health effects should not be expected to occur. The silica case remains an active matter and I am not authorized by my clients to say more.

48. Do you agree with President Trump's decision to withdraw the United States from the International Paris Climate Accord? If so, please explain.

President Trump is the Nation's Chief Executive. I believe it was within his authority to withdraw. I respect his decision.

49. In part of his justifications for withdrawing from the Paris Climate Agreement, President Trump stated the Paris Accord could, "cost America as much as 2.7 million lost jobs by 2025 according to the National Economic Research Associates (NERA)."²⁰ This economic statistic and others linked to the NERA study were also distributed in White House materials as reasons the President was deciding to withdraw from the Paris Accord. Soon after the President's speech, NERA stated, "In a set of talking points distributed by the White House in conjunction with its announcement of the US withdrawal from the Paris Agreement, the Trump Administration selectively used results from a NERA Economic Consulting study, "Impacts of Greenhouse Gas Regulations on the Industrial Sector." ... Use of results from this analysis as estimates of the impact of the Paris Agreement alone mischaracterizes the purpose of NERA's analysis, which was to explore the challenges of achieving reductions from US industrial sectors over a longer term. Selective use of results from a single implementation scenario and a single year compounds the mischaracterization."²¹

- a. In light of the NERA statement, do you think the President misspoke when he wrongly cited information from the NERA study in his Paris speech? If not, why not?
- b. If confirmed, will you commit that you will not distort the NERA study – or any other economic study - to justify the U.S. withdrawing from the Paris Climate Accord or to justify the elimination or delay of climate policies?
- c. After the President's Paris Climate Accord speech, MIT's Joint Program on the Science and Policy of Global Change issued a statement stating the President's characterization of their analysis of the Paris Accord to be misleading.²² If confirmed, will you commit that you will not distort the climate science studies to justify the U.S. withdrawing from the Paris Climate Accord or to justify the elimination or delay of climate policies?

²⁰ <https://www.whitehouse.gov/the-press-office/2017/06/01/statement-president-trump-paris-climate-accord>

²¹ <http://www.nera.com/news-events/press-releases/2017/nera-economic-consultings-study-of-us-emissions-reduction-policy.html>

²² <http://news.mit.edu/2017/mit-issues-statement-research-paris-agreement-0602>

I am not familiar with the NERA study, so I cannot assess NERA's comments. If confirmed, my goal would be not to "distort" anybody's statements.

50. In a Law360 interview, you were asked, "What is the most challenging case you have worked on and what made it challenging?" You responded, "Without a doubt, it would be Massachusetts v. EPA. I was at the EPA at the time, working as counsel to the assistant administrator for air, Jeff Holmstead."²³ Please explain in detail, what your involvement was while in the EPA regarding regulations that led to, and the agency's defense of the Massachusetts v. EPA case.

There were no regulations that led to the Mass v EPA decision. The decision under review was EPA's denial of a citizen petition asking EPA to regulate GHG emissions from motor vehicles. OAR was responsible in the first instance for preparing the proposed and final denial. OAR staff – including myself – provided support to the government litigation team while the case was pending in the DC Circuit and the US Supreme Court.

²³ <https://www.law360.com/articles/427231/q-a-with-hunton-williams-bill-wehrum>

Senator Cardin

51. On December 15, 2016, EPA extended by six months the deadlines to respond to petitions submitted by the state of Maryland under section 126 of the Clean Air Act. The petition from Maryland requests that EPA make a finding that 36 electric generating units located in the states of Indiana, Kentucky, Ohio, Pennsylvania, and West Virginia are emitting air pollutants that significantly contribute to nonattainment or interfere with maintenance of the 2008 and the 2015 ozone NAAQS in Maryland. On September 27, 2017, the State of Maryland filed a complaint in the United States District Court of the District of Maryland against the EPA because of the lack of response in regard to the 2016 Good Neighbor petition.

Will you commit to urge the EPA to approve the petition and enforce the air pollution controls already in place in Maryland at upwind out-of-state facilities that directly impede efforts to attain and maintain federal health-based air quality standards in Maryland?

I cannot commit at this time to take any action for which I might be responsible if confirmed to be AA for OAR. I will note that CSAPR and the CSAPR update rule were intended to address interstate transport under § 110(a)(2)(D), such that there should not be a need or justification for § 126 petitions addressing the same plants, pollutants, and standards. If confirmed, and if the issues have not yet been resolved, I will look closely at the intersection of Maryland's § 126 petition with the CSAPR rules.

Senator Duckworth:

52. The Renewable Fuel Standard (RFS) program passed Congress with broad bipartisan support and was signed into law by President George W. Bush because it strengthens our nation's energy independence and security. The RFS supports rural communities and American farmers, while reducing greenhouse gas emissions. In my home State of Illinois alone, the RFS has helped create 4000 jobs and more than \$5 billion in economic impact.

I am concerned Administrator Pruitt, who reassured Congress that he would execute the program as Congress intended, will break his promise and implement the law in such a way as to limit or cap the growth in renewable fuels – directly violating the RFS program's statutory goals to increase American energy independence and security through increased production of biofuels. As the U.S. Environmental Protection Agency (EPA) has repeatedly affirmed, any policy that decreases or limits growth in biofuels is inconsistent with the statutory goals that Congress enshrined in the law.

Do you believe that Congress intended the RFS to promote long-term growth in all biofuels fuels, including cellulosic ethanol? If confirmed, will you commit that EPA will issue Renewable Volume Obligations that increase production of renewable fuels across the board?

The RFS clearly was intended to promote the growth of a wide range of biofuels, including cellulosic ethanol. I cannot commit at this time to take any action for which I might be responsible if confirmed to be AA for OAR. If confirmed, my intention is to faithfully implement all aspects of the CAA, including the RFS.

53. During your nomination hearing you stated that you will seek guidance from EPA ethics officials on whether or not you should recuse yourself from issues for which you have previously been engaged in. However, as a regulator and a public servant, you can and should use your own discretion on recusal to avoid even the appearance of conflict of interest.

If confirmed, will you commit to recusing yourself on any issue related to biofuels or the renewable fuels standard given your past work on behalf of industry interests? What other steps will you take to guarantee that your financial and political interests do not influence your work on the RFS?

Comprehensive rules of ethics govern the transition from private practice to government service. These rules address both real conflicts and appearances of impropriety. If confirmed, I will work closely with EPA ethics officials to understand and strictly comply with my ethical obligations.

54. Will you submit for the record a full list describing any action you performed in your professional career related to the RFS program and identify the client or clients on whose behalf you were acting for each action?

I was counsel of record on three cases related to the RFS (principal clients are included in parentheses): (1) a challenge to EPA's E15 waiver (API and the Grocery Manufacturers Association); (2) a challenge to EPA's misfueling mitigation rule (API); and (3) a challenge to Minnesota's B10 mandate (API, the Auto Alliance, the American Fuel and Petrochemical Manufacturers). I also was responsible for RFS implementation during my prior tenure at EPA.

55. The Mercury and Air Toxics Rule, or MATS, is an EPA success story about protecting our most vulnerable – our children. After decades of delayed action, EPA implemented the MATS rule to protect our children and our pregnant women from our country's number one source of unregulated mercury and other air toxic pollution: power plants.

Today, EPA says very few power plants in the country are not meeting the MATS pollution reduction timelines. Dr. Goldman, a world-renowned epidemiologist, pediatrician and Dean of the School of Public Health at George Washington University, testified earlier this year that we are seeing the public health benefits of MATS faster than predicted. Simply put, compliance for industry has been easier than opponents of this rule predicted and children are better protected than doctors expected – a real win-win that would never have occurred had corporate special interests prevailed in killing this critical public health rule.

Despite these successes, you continue to lead industry lawsuits against the MATS Rule, falsely claiming that EPA has yet to prove it is appropriate and necessary to regulate mercury and air toxic emissions from power plants, a decision made almost two decades ago. You have argued that the price of our children's mental development is worth less than running pollution control technology that is already bought, paid for and running on our power plants.

How can you assure us you will be impartial – you will choose our children over industry - when it comes to the Mercury and Air Toxics rule? How can you assure the American public that you will do the right thing to protect the children of Illinois and the children of all Americans?

This question is premised on two factual inaccuracies. First, I do not “lead industry lawsuits against the MATS Rule.” I was not counsel of record in the challenges to MATS and am not counsel of record in challenges to EPA's renewed “appropriate and necessary” finding. Second, industry petitioners in the MATS case did not make “false claims” related to the “appropriate and necessary” finding. In fact, the US Supreme Court determined that that finding was unlawful, which supported the petitioners' claims in this regard. Having said that, I have a deep interest in protecting public health and the environment, including children's health.

56. As you know Administrator Pruitt, like Secretary Zinke and former Secretary Price have spent millions of dollars combined flying on private jets across the country. This is a gross waste of taxpayer dollars.

Yes or no, as a taxpayer, do you approve of Administrator Pruitt's travel practices on the public dime, and will you commit to utilizing commercial flights in your position?

I am not familiar with Administrator Pruitt's or Secretary Zinke's travel history, so cannot speak to this aspect of your question. Should I be confirmed, I intend to utilize commercial flights to carry out my official duties.

Senator Ernst:

57. Administrator Pruitt has made engagement with rural America a priority and he has expressed particular concern over how EPA regulations, such as the Waters of the United States (WOTUS) rule, impact these local communities. In cases like WOTUS, the previous EPA did not fully analyze the costs associated with the regulation, particularly for rural communities. At the same time, the benefits of this rule, and others, were often overstated. How will you work to assure transparency when documenting the costs and benefits associated with EPA actions under your office?

Costs can be considered in setting some, but not all, Clean Air Act rules. But, even when costs cannot be considered, it is important to prepare a comprehensive regulatory impact analysis so that the full costs and benefits of a rule are known. If confirmed, I will work hard to ensure that costs and benefits are accurately assessed and appropriately considered.

58. At multiple times over the course of your career you have represented clients such as API, GMA and others in cases intended to undermine the RFS. The questions you have argued in those cases are relevant to the current RVO rule making for 2018 and 2019, as well as those statutorily required going forward. Additionally, they are relevant to the regulatory decisions related Reid Vapor Pressure waivers, biofuel pathway approval, and topics you will have oversight of, if confirmed. Given this, will you recuse yourself from RFS rulemaking, administering the program or some portions of the program if confirmed, and if you do, who will administer the RFS?

I was counsel of record in cases challenging EPA's E15 waiver, EPA's misfueling mitigation rule, and Minnesota's B10 mandate. These cases have all been decided and have no direct bearing on RFS implementation going forward. If confirmed, I do not believe it will be necessary or appropriate for me to recuse myself from RFS matters, although I will continue to work with EPA ethics officials to make sure that I fully comply with my obligations, and my intention is to faithfully implement all aspects of the CAA, including the RFS.

59. If you are confirmed, will you commit to have an open door policy for all interest groups, including those representing biofuels, to ensure that their perspectives are taken into consideration by yourself, the Administrator, and the rest of political leadership at EPA?

If confirmed, I fully intend to have an open door policy on all issues.

60. Do you believe it is fair and appropriate to use only the input of parties regulated by the Clean Air Act when making regulatory decisions?

No, many parties that are not subject to EPA's rules are affected by the rules and should have the opportunity for input.

Senator Fischer:

61. Mr. Wehrum, during questioning you stated that you did not have an in depth understanding around the Renewable Fuels Standard (RFS). Were you ever counsel for any clients involved in lawsuits around the RFS or ethanol-blended fuels? Can you state what your role was in that case(s) and who you represented?

I have worked with the RFS in private practice and in my prior tenure at EPA. I was particularly familiar with the first phase RFS rules that implemented the original RFS that was enacted as part of the 2005 energy bill. The first phase rules were put in place while I was at EPA. OAR was primarily responsible for developing them. I am much less familiar with the second phase RFS program, which implemented the RFS amendments enacted as part of the 2007 energy bill. The cases I handled after leaving EPA dealt with very limited aspects of the RFS including challenges to EPA's E15 waiver, EPA's misfueling mitigation rule, and Minnesota's B10 mandate. These cases have all been decided and had essentially nothing to do with the second phase program nor do they have any direct bearing on RFS implementation going forward. Also, there are a number of recent court decisions more pertinent to EPA's most recent RFS-related actions that I am not familiar including recent case law on EPA's RFS waiver authority that I have not analyzed. I also do not know EPA's view of the recent cases and, more broadly, its current view of its waiver authority.

62. As a follow-up, were you serving in the position you are currently nominated to serve in again during the George W. Bush Administration while the RFS1 was implemented?

As explained in my response to your first question, the RFS1 rules were developed and implemented during my prior tenure at EPA. I was involved in that effort.

63. Do you plan to recuse yourself from any items on the RFS or ethanol-blended fuels that you litigated on while in private practice?

I was counsel of record in cases challenging EPA's E15 waiver, EPA's misfueling mitigation rule, and Minnesota's B10 mandate. These cases have all been decided and have no direct bearing on RFS implementation going forward. If confirmed, I do not believe it will be necessary or appropriate for me to recuse myself from RFS matters, although I will continue to work with EPA ethics officials to make sure that I fully comply with my obligations, and my intention is to faithfully implement all aspects of the CAA, including the RFS.

Senator Markey:

Mr. Wehrum, because of the Landmark 2007 Supreme Court ruling in Massachusetts v. EPA the EPA made a finding that carbon pollution poses a danger to America, known as the endangerment finding. This ruling made it possible for states like California and Massachusetts to use their Clean Air Act Authority to set higher fuel economy emissions standards for vehicles. State action combined with my 2007 fuel economy law, resulted in an auto industry approved increase of the fuel economy emissions standards to 54.5 miles per gallon by 2025. Those standards will save nearly 2.5 million barrels of oil a day by 2030, are the single largest step any nation has taken to reduce global warming pollution and will save consumers more than \$1 trillion. And the auto industry has added 700,000 new jobs since these standards began to take effect.

Administrator Pruitt in his confirmation hearing before this Committee stated that the Endangerment Finding “needs to be enforced and respected.” Administrator Pruitt also said earlier this year that “the Clean Air Act focused on mobile sources over the last several years I think has made a substantial difference with respect to GHG and CO2.”

64. Mr. Wehrum, yes or no, do you agree with Administrator Pruitt that the endangerment finding needs to be enforced and respected?

I have not discussed the endangerment finding with Administrator Pruitt, so I do not know his current views on the topic.

65. Mr. Wehrum, yes or no, do you support EPA’s continued regulation of greenhouse gases from cars under the Clean Air Act?

I believe that primary responsibility for regulating fuel economy belongs to the Department of Transportation. I believe that it is important for EPA to harmonize its actions with those of DOT.

Senator Merkley:

66. If you are confirmed as the Assistant Administrator of EPA's Office of Air and Radiation, you will be responsible for implementing the Clean Air Act, which, according to the Supreme Court in *Massachusetts vs EPA*, EPA has the authority to regulate greenhouse gases. Therefore, your understanding of the most basic principles of climate change science will be essential to your role in the regulation of greenhouse gases. In the Intergovernmental Panel on Climate Change's 5th Assessment Report, entitled, "Climate Change 2014 Synthesis Report Summary for Policymakers" (found here: http://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf) the finding under "SPM1" that is labeled "{1}" (note that the labels {x} immediately follow the findings they refer to), states "Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems. {1}". Do you agree with that finding?
- a. If you do not agree with this finding, please explain why, and provide at least one peer reviewed study supporting your stated position.

I believe that the climate is changing and that manmade emissions are contributing to the change. I believe that amount attributable to manmade emission is not currently known with certainty. The IPCC quote is not inconsistent with these views.

67. In that same report, the finding under "SPM 1.1" labeled "{1.1}" states "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen. {1.1}." Do you agree with that finding?
- a. If you do not agree, please explain why, and provide at least one peer reviewed study supporting your stated position.

I believe that the climate is changing, as is suggested by the quote.

68. In that same report, the finding under "SPM 1.2" labeled "{1.2, 1.3.1}" states "Anthropogenic greenhouse gas emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever. This has led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects, together with those of other anthropogenic drivers, have been detected throughout the climate system and are *extremely likely* to have been the dominant cause of the observed warming since the mid-20th century." Do you agree with this finding?

- a. If you do not agree with this finding, please explain why, and provide at least one peer reviewed study supporting your stated position.

I believe that the climate is changing and that manmade emissions are contributing to the change. I do not know what is meant by “other anthropogenic drivers.” If confirmed and as necessary, I can delve into this question.

69. In that same report, the finding under “SPM 2” labeled “{2}” states “Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks. {2}”. Do you agree with this finding?

- a. If you do not agree with this finding, please explain why, and provide at least one peer reviewed study supporting your stated position.

It is my understanding that domestic reductions in greenhouse gas emissions, such as those accomplished by EPA’s current regulatory programs, are projected to have little effect on predicted climate change.

70. In that same report, the finding under “SPM 3” labeled “{3.2, 3.3, 3.4}” states “Adaptation and mitigation are complementary strategies for reducing and managing the risks of climate change. Substantial emissions reductions over the next few decades can reduce climate risks in the 21st century and beyond, increase prospects for effective adaptation, reduce the costs and challenges of mitigation in the longer term and contribute to climate-resilient pathways for sustainable development. {3.2, 3.3., 3.4}”. Do you agree with this finding?

- a. If you do not agree with this finding, please explain why, and provide at least one peer reviewed study supporting your stated position.

It is my understanding that domestic reductions in greenhouse gas emissions, such as those accomplished by EPA’s current regulatory programs, are projected to have little effect on predicted climate change.

71. In that same report, the finding under “SPM 3.2” labeled “{3.2, 3.4}” states “Without additional mitigation efforts beyond those in place today, and even with adaptation, warming by the end of the 21st century will lead to high to very high risk of severe,

widespread and irreversible impacts globally (high confidence). Mitigation involves some level of co-benefits and of risks due to adverse side effects, but these risks do not involve the same possibility of severe, widespread and irreversible impacts as risks from climate change, increasing the benefits from near-term mitigation efforts. {3.2, 3.4}”. Do you agree with this finding?

- a. If you do not agree with this finding, please provide at least one peer reviewed study supporting your stated position.

The Trump Administration has announced its intent to reconsider the so-called “social cost of carbon,” which is an estimate of the benefit associated with each ton of GHG emissions reduced. That work is directly related to the topic of this question. If confirmed, I likely will be involved in this effort. It is inappropriate for me to prejudge the outcome of this effort.

72. In that same report, the finding under “SPM 4” labeled “{4} states “Many adaptation and mitigation options can help address climate change, but no single option is sufficient by itself. Effective implementation depends on policies and cooperation at all scales and can be enhanced through integrated responses that link adaptation and mitigation with other societal objectives. {4}”. Do you agree with this finding?

- a. If you do not agree with this finding, please explain why, and provide at least one peer reviewed study supporting your stated position.

To the degree manmade GHG emissions are contributing to climate change, I believe that emissions worldwide are contributing.

73. What are the annual emissions of greenhouse gases from power plants in the United States?

- a. Are power plants one of the largest sources of greenhouse gas emissions?

I do not know the current level of GHG emissions from domestic power plants. Yes, they collectively are one of the largest domestic sources of manmade GHG emissions.

74. Mr. Wehrum, in your testimony, you said that human’s contribution to climate change is “an open question”. Please name which of these major scientific organizations have stated that human activity is the major driver of climate change.

The American Association for the Advancement of Science (AAAS)
American Chemical Society

American Geophysical Union;
 American Institute of Biological Sciences;
 American Meteorological Society;
 American Public Health Association;
 American Society of Agronomy;
 American Society of Ichthyologists and Herpetologists;
 American Society of Naturalists;
 American Society of Plant Biologists;
 American Statistical Association;
 Association for the Sciences of Limnology and Oceanography;
 Association for Tropical Biology and Conservation;
 Association of Ecosystem Research Centers;
 BioQUEST Curriculum Consortium;
 Botanical Society of America;
 Consortium for Ocean Leadership;
 Crop Science Society of America;
 Ecological Society of America;
 Entomological Society of America;
 Geological Society of America;
 National Association of Marine Laboratories;
 Natural Science Collections Alliance;
 Organization of Biological Field Stations;
 Society for Industrial and Applied Mathematics;
 Society for Mathematical Biology;
 Society for the Study of Amphibians and Reptiles;
 Society of Nematologists;
 Society of Systematic Biologists;
 Soil Science Society of America;
 University Corporation for Atmospheric Research.

My statement was not based on the views of these groups.

75. Mr. Wehrum, in your testimony, you declined to comment on the graphs I presented depicting the natural forces on observed temperature, and of greenhouse gases on observed temperature, saying you would need to see the underlying data. This website provides a clear presentation of the data, <https://www.bloomberg.com/graphics/2015-whats-warming-the-world/>, as well as an explanation of the methodology for these charts, including links to the models and data. Now that you have the time to review the methodology and data, can you please provide your own interpretation of these data sets?

a. Do you agree with NASA's finding that human activity is the primary driver of climate change as shown by these data sets?

- b. If you do not agree with NASA's finding from these data sets that human activity is the primary driver of climate change, please explain, in detail, your critiques of these data sets, and please cite at least one peer reviewed study that informs your critique.

Given the short schedule provided for responding to these questions, and given the substantial number of complex questions, I have not had time to further investigate your graphs or the data used to prepare the graphs.

76. You responded to my question about ocean acidification with the response that you are familiar with the "allegation of ocean acidification." The definition of allegation, according to Merriam-Webster, is "1. The act of alleging something", where "alleging" means "to assert without proof or before proving", and "2. A positive assertion especially of misconduct", and "3. An assertion unsupported and by implication regarded as unsupportable". Given that NOAA has directly measured changes in the pH of the oceans, showing that ocean water has become more acidic over time, do you believe that "ocean acidification" is an assertion "without proof"?
- a. If you believe ocean acidification is an allegation, do you doubt scientists' ability to measure the pH of water?
 - b. If you do not believe that "ocean acidification" is an assertion "without proof", then will you retract your use of the word "allegation" to describe ocean acidification?
 - c. Scientists from both NOAA and the EPA have published information and data sets on ocean acidification, found here: <https://www.epa.gov/ocean-acidification> and here: <https://pmel.noaa.gov/co2/story/A+primer+on+pH> Can you please describe both NOAA and EPA's conclusion on the causes of ocean acidification?
 - d. In your testimony, you said you would defer to EPA scientists and career staff on matters of science. Will you defer to EPA career staff on the science of climate change and ocean acidification?
 - e. Please describe your current understanding of ocean acidification in detail, and provide at least one peer reviewed study supporting your stated position.

Given the short schedule provided for responding to these questions, and given the substantial number of complex questions, I have not had time to

review the sources to which you refer in this question. I have high regard for EPA career staff and executives. If confirmed, I will consider their views and advice very carefully on all matters, including climate change and ocean acidification.

77. In a recent public disclosure of Administrator Pruitt's calendar of meetings, less than 3% of his meetings were with public health and environmental advocacy organizations, whereas over 25% of his meetings were with industry representatives. Do you believe this reflects fair and balanced input from public health and environmental advocacy organizations?

I am not familiar with Administrator Pruitt's schedule, so I cannot comment on it.

78. Will you commit to a fair and balanced ratio of input from public health and environmental advocacy organizations?

Many parties that are not subject to EPA's rules are affected by the rules and should have the opportunity for input. I fully intend to have an open door policy on all issues.

Senator Sanders:

Climate Change

79. President Trump has suggested in the past that climate change is a hoax. Is the President correct? Is climate change a hoax?

I believe that climate change is real and human activity contributes to climate change.

80. Do you agree with the vast majority of scientists that climate change is real, is caused by human activity, and that we must aggressively transition away from fossil fuels and toward energy efficiency and sustainable energy like wind, solar, and geothermal?

I believe that climate change is real and human activity contributes to climate change.

81. Do you agree with the vast majority of scientists that the combustion of fossil fuels contributes to climate change?

Yes, the combustion of fossil fuels results in GHG emissions, which contribute to climate change.

82. If confirmed, what will you do to ensure that OAR addresses climate change?

If confirmed, I will faithfully implement the Clean Air Act, including authorities related to GHGs and climate change.

Background

83. As a lobbyist with Hunton and Williams, you have represented a host of fossil fuel and chemical companies in lawsuits, some of which are still active, against the EPA. If confirmed, you would be in charge of making sure that these industries install necessary pollution control technologies and conduct waste cleanup.

As Assistant Administrator for the Office of Air and Radiation, would you have any active conflicts of interests with these companies? If so, will you commit to recuse yourself for the full course of any matter in which any of your former clients is a party? If not, why not?

Comprehensive rules of ethics govern the transition from private practice to government service. If confirmed, I will work closely with EPA ethics officials to understand and strictly comply with my ethical obligations.

84. While serving as Assistant Administrator for the Office of Air and Radiation under President Bush, you attempted to roll back environmental protections under the Clean Air Act. These rollback attempts were eventually defeated in the Supreme Court. If confirmed, will you commit to carrying out the Office of Air and Radiation's obligations under the

law, including as decided by the Supreme Court?

If confirmed, I will faithfully implement the Clean Air Act, including as construed by the US Supreme Court.

85. In your past career, you have brought suit against the EPA for its enforcement of the Clean Air Act. Can you explain why federal courts should be in the position of determining safe levels of pollution to protect the health and welfare of Vermonters, as opposed to the federal Agency whose mission it is to protect human and environmental health?

Separation of powers is a core principle embedded in the US Constitution. As applied here, US EPA has been authorized by Congress to implement the national environmental laws. The role of the courts is to determine if EPA has fulfilled its legal obligations.

Science

86. At the EPA, science provides the foundation for Agency policies, actions, and decisions made on behalf of the American people. What should the role of science be in the development of EPA policies, rules, and regulations?

As you say, science provides the foundation for many agency policies, actions, and decisions. EPA's role is to apply science and other relevant information in implementing the law.

Most Pressing Challenges

87. In your opinion, what are the most pressing air quality challenges that deserve the attention of the EPA? What will you do at the EPA to better address these challenges?

Full implementation of the CAA § 112 air toxics program is one of the most pressing and difficult challenges facing OAR. If confirmed, this would be a priority for me and my staff.

Environmental Regulations

88. If confirmed, do you commit to upholding the goal of the Clean Air Act, which according to the EPA website is "to address the public health and welfare risks posed by certain widespread air pollutants"?

Yes.

89. The EPA has adopted many cost-effective safeguards in the past eight years that would significantly reduce the pollution that contributes to asthma in children. If confirmed, will you commit to addressing threats from air pollution to America's children?

Yes, protecting the public health requires consideration of susceptible subpopulations, such as children.

Environmental Justice

90. If confirmed, will you commit to addressing the growing environmental and economic justice issues associated with air quality?

If confirmed, I commit to working with you to promote public health and equal application of the law for all Americans.

91. If confirmed, will you commit to addressing issues of environmental justice in Native American communities and offer a voice to those most affected by the environmental consequences of industrialization, especially in regard to resources protected by treaties?

If confirmed, I commit to working with you to promote public health and equal application of the law for all Americans, including Native Americans.

92. Latino children are twice as likely as non-Latino white children to die from asthma while, from 2012-2014, African American children had a death rate ten times that of non-Latino white children. African American children are three times as likely to suffer an asthma attack.

As Assistant Secretary of Air, will you commit to ensuring that vulnerable low-income communities and communities of color are protected from the harmful impacts of air pollution?

If confirmed, I commit to working with you to promote public health and equal application of the law for all Americans, including low-income communities and communities of color.

Senator Whitehouse:

93. You have been leading the fight against EPA air standards so it's unclear to me how you're capable of serving in this position consistent with the requirements of Executive Order 13770, "Ethics Commitments by Executive Branch Employees," otherwise known as the Trump ethics pledge. The pledge prohibits appointees from "participat[ing] in any particular matter involving specific parties that is directly and substantially related to [their] former employer or former clients" for the first two years after their appointment. Your ethics agreement states you intend to sign the pledge. We are aware of dozens of separate air cases you've worked on for clients regulated by EPA during your time at Hunton & Williams. Further, your law firm has performed millions of dollars worth of lobbying for Exxon Mobil, Koch Companies, Southern Company, and several other companies regulated by EPA.

- a) To ensure compliance with the pledge, please provide for the record all of Hunton & Williams clients, cases, regulatory matters, and issues/legislation on which its lobbied from the past two years, noting all clients with whom you've worked, cases on which you've worked, regulatory work you've done, and any issues/legislation on which you've lobbied.
- b) Your financial disclosure or 278 form does not require disclosure of pro bono work. For the past two years, please provide a list of all Hunton & Williams pro bono work, including the clients, cases, regulatory matters, and lobbying, noting all pro bono clients with whom you've worked, pro bono cases on which you've worked, pro bono regulatory work you've done, and pro bono lobbying you've preformed.

I do not have a list of all particular matters involving specific parties in which Hunton & Williams is a party or represents a party. If confirmed, I intend to ascertain Hunton's involvement on a case-by-case basis before becoming involved in any particular matter involving specific parties. With regard to pro bono, for the past two years I have done work on state "freedom of information act" laws for a non-profit charitable organization. Please see attachment 1.

94. Your ethics statement suggests to me that you will be seeking waivers to ethics requirements. You may be allowed to seek a waiver, which I find troubling given your extensive history attacking clean air regulations on behalf of companies regulated by EPA.
- a. Please identify all particular matters which you believe at this time may require you to seek a waiver.
 - b. For each of these matters, please state why it would be in the public interest to grant you a waiver.
 - c. For any matters that you have not identified in response to this question, will you commit to not seeking a waiver from ethics requirements?

I do not have current plans to seek waivers.

95. Through documents produced from Oklahoma Open Records Act requests, we also know that Hunton & Williams staff worked with industry in key states to get other state Attorneys General on a comment letter Pruitt was leading to EPA opposing the carbon pollution standards for new power plants. Hunton & Williams staff also worked with Pruitt's staff to discuss who to approach about signing on, and coached them on how and when to submit the comments. Which client or clients did Hunton and Williams bill for this work?

The client(s) has not authorized me to disclose this information.

96. According to a separate set of documents, some of which are marked "confidential", Hunton & Williams arranged a Summit on Federalism and the Future of Fossil Fuels convened by then-Oklahoma Attorney General Pruitt, sponsored by the George Mason School of Law's Law & Economics Center. Which client or clients did Hunton and Williams bill for this work?

The client(s) has not authorized me to disclose this information.

97. Hunton & Williams, directly contributed to Scott Pruitt's campaign in 2010 and contributed over \$200,000 to RAGA and RAGA's predecessor organization, the Republican State Leadership Committee during Scott Pruitt's time as board chair and on the executive committee.
- a. Between November 1, 2011 and February 17, 2017, how much have you or Hunton & Williams contributed to the Rule of Law Defense Fund (RLDF)?
 - b. While Scott Pruitt was Attorney General of Oklahoma, what, if any, fundraising events for Scott Pruitt did you attend?
 - c. While Attorney General of Oklahoma, did Scott Pruitt ever solicit money from you or Hunton & Williams for his campaign, his Oklahoma Strong or Liberty 2.0 PACs, RAGA, or the RLDF?
 - d. If yes, please describe each solicitation and how much you and Hunton & Williams contributed as a result of each solicitation.
 - e. Please provide a list of all RAGA or RLDF contributions, calls, meetings, events, or activities of yours or Hunton & Williams since November 1, 2011 and February 17, 2017.

I have not contributed to or been involved with RLDF, Administrator Pruitt's campaigns or PACs, or to RAGA. Hunton & Williams' political contributions are a matter of public record.

98. Please describe any role you or Hunton & Williams played in the establishment of or financial contributions to America Rising, America Rising Squared, Protecting America Now, and any other organizations that funded efforts to get Scott Pruitt confirmed as EPA Administrator.

I played no role in any of these efforts or organizations. I am not aware that anyone from Hunton was involved.

99. EPA Administrator Pruitt recently told CNBC that “I would not agree that [carbon dioxide’s] a primary contributor to the global warming that we see.” Based on the scientific findings from experts such as NOAA and statements on EPA’s website, including “Carbon dioxide is the primary greenhouse gas that is contributing to recent climate change,” Politifact determined that statement to be false. Do you agree with Administrator Pruitt or scientific experts regarding whether carbon dioxide is the primary greenhouse gas that is contributing to climate change?

I believe the degree to which manmade GHG emissions are contributing to climate change has not been conclusively determined.

100. In 2009, as mandated by the Supreme Court and backed by a robust scientific and technical review, the Environmental Protection Agency produced the Endangerment and Cause or Contribute Findings for Greenhouse Gases (GHGs) under Section 202(a) of the Clean Air Act. It found six greenhouse gases - carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride - "taken in combination endanger both the public health and the public welfare of current and future generations."

- a. Do you agree with the EPA's endangerment finding? Why or why not?
- b. Do you commit to not take any steps to narrow the scope or otherwise weaken the endangerment finding?

I have not read the endangerment finding or the record prepared in support of the finding. Therefore, I currently do not have a view. Otherwise, I cannot prejudge any decision that might be made by EPA if I am confirmed.

101. Four Republican former EPA Administrators – Bill Reilly, Bill Ruckelshaus, Lee Thomas, Governor Christine Todd Whitman – testified before EPW that climate change is real and EPA has clear authority under the Clean Air Act to curb carbon dioxide?

- a. Do you agree that climate change is real?
- b. Do you agree that EPA has authority under the Clean Air Act to reduce carbon dioxide?

I agree that climate change is real and that EPA has limited authority under the CAA to regulate carbon dioxide emissions.

102. Industry frequently talks about compliance costs while ignoring the costs to people harmed by the effects of pollution. In Rhode Island these effects cannot be ignored as we see them through bad air days and other problems. Because Rhode Island ozone air quality issues are largely due to transported emissions from upwind states leading to ozone formation that pollutes the air and lungs of people in downwind states like mine. Over the past two years in Rhode Island, the 8-hour standard ozone standard exceeded 0.07 ppm 10 times in 2015 and 6 times in 2016.

- a. With respect to ozone, do you believe EPA should look at only the costs to industry when undertaking its regulatory impact analysis?
- b. Should the costs to families, such as children sent to emergency rooms due to asthma attacks triggered by smog, be included in the analysis?
- c. If so, should those costs be given a different weight than those claimed by industry?

Costs can be considered in setting some, but not all, Clean Air Act rules. But, even when costs cannot be considered, it is important to prepare a comprehensive regulatory impact analysis so that the full costs and benefits of a rule are known. If confirmed, I will work hard to ensure that costs and benefits are accurately assessed and appropriately considered.

103. Ozone levels in RI are strongly affected by the transport of pollutants emitted in upwind states into RI. Although RI is currently designated as an unclassifiable/attainment area for the ozone NAAQS, monitored ozone levels in the state still exceed the standard on a number of days in the summer months because of out of state pollution.

- a. What, if any steps, have you taken in your career to help reduce the transport of pollution from upwind states into downwind states like Rhode Island?
- b. If confirmed, what steps will you take to address the transport of pollutants emitted in upwind states that contribute to exceedances of the ozone standard in RI and other downwind states?

The “Clean Air Interstate Rule” was issued during my prior tenure at EPA. It was designed to address “interstate transport” (including into the State of Rhode Island) under the authority of CAA § 110(a)(2)(D). If confirmed, I intend to faithfully implement the Clean Air Act, including the interstate transport provisions.

104. According to EPA, 49% of coal units lack the most advanced NO_x controls (Selective Catalytic Reduction systems or SCR). Several units that have SCR or other NO_x emission control technology installed are not optimizing their use. For example, these six coal units have SCR installed but are not using it to optimize NO_x reductions. In 2015, these facilities' NO_x emissions were significantly higher than 2009 because they are not using the systems they have in place to reduce NO_x.

Facilities with Increasing NO_x

Facility	NO _x Emission Increase	NO _x Rate Increase
Harrison Power Station, West Virginia	13,139 tons (277%)	0.22 lb/mmBtu (220%)
Keystone, Pennsylvania	10,594 tons (285%)	0.22 lb/mmBtu (296%)
Pleasants Power Station, West Virginia	8,734 tons (341%)	0.24 lb/mmBtu (284%)
Homer City, Pennsylvania	7,522 tons (72%)	0.20 lb/mmBtu (107%)
Montour, Pennsylvania	5,889 tons (109%)	0.24 lb/mmBtu (207%)
St. Johns River Power, Florida	4,262 tons (60%)	0.23 lb/mmBtu (142%)

- a. Why would this be the case?
- b. Do you think these facilities should be required to keep on their NO_x controls on?

I am not familiar with these particular power plants and do not know why they emit at the levels you report.

105. EPA's independent science advisers, leading medical groups like the American Medical Association, American Academy of Pediatrics, American Thoracic Society, American Lung Association, American Heart Association, and leading public-interest groups such as the NAACP called for a 60 ppb standard instead of the 70 ppb standard EPA finalized last year.

- a. What do you believe is a health-protective standard for ozone?
- b. Do you agree that one of the goals of the Clean Air Act is to set NAAQS standards to address the public health and welfare risks of NAAQS pollutants?
- c. When considering setting NAAQS limits, should cost be considered?

I am not familiar with the current science on the health effects of ozone, so I cannot comment on your question as to the appropriate level of the standard. The US Supreme Court has ruled that cost may not be considered in determining the level of a NAAQS and that a primary standard should be set at the level "requisite" to protect public health with an adequate margin of safety. I respect the court's decision.

106. According to the EPA, it has been estimated that the Clean Air Act has a history of reducing air pollution, while creating jobs. Since 1970 aggregate emissions of common air pollutants dropped 72 percent, while the U.S. gross domestic product grew 219 percent. Total private sector jobs increased by 101 percent over the same period. In 2020, EPA

estimates that the standards will create the equivalent of over 104,000 new jobs including 17,000 new jobs building renewable energy facilities and over 78,000 jobs in improving demand-side energy efficiency.

- a. Do you agree that regulations under the Clean Air Act since 1970 have helped grow the economy?
- b. If not, can you provide your analysis, materials used, and people you solicited to come to this conclusion?

I am not familiar with the EPA analysis that produced these estimates. I believe that some, but not all, CAA-based regulations produce net benefits to the country.

107. How will you separate your history representing polluters in challenging environmental protections to defending EPA's mission of protecting public health and the environment?

Comprehensive rules of ethics govern the transition from private practice to government service. If confirmed, I will work closely with EPA ethics officials to understand and strictly comply with my ethical obligations.

108. Have you heard anything to suggest that EPA may close or consolidate any Regional Offices? What is your opinion of such a proposal?

I do not know whether this is being considered and do not have an opinion.

109. During previous administrations, senior EPA managers' schedules have been available to the public and Administrator Pruitt recently started releasing his. If confirmed, do you agree to make your schedule available as well?

If confirmed, I will make my calendar available on a timely basis.

110. I found it extremely troubling that when asked about ocean acidification during your confirmation hearing, that you, a chemical engineer, said you were "aware of the allegation." The definition of "allegation" is "a claim or assertion... typically one made without proof." According to the following experts, ocean acidification is real and occurring:

National Academies of Sciences, Engineering and Medicine 2013 Review of the Federal Ocean Acidification Research and Monitoring Plan:

"The world's ocean has already experienced a 30% rise in acidity since the industrial revolution, with acidity expected to rise 100 to 150% over preindustrial levels by the end of this century. Potential consequences to marine life and also to economic activities that depend on a healthy marine ecosystem are difficult to assess and predict, but potentially devastating."

EPA 2016 Report on Climate Change Indicators in the U.S.:

“As the concentration of carbon dioxide in the atmosphere increases, the ocean absorbs more of it. Over the past 250 years, oceans have absorbed about 28% of the carbon dioxide produced by human activities that burn fossil fuels. Rising levels of carbon dioxide dissolved in the ocean negatively affect some marine life, because carbon dioxide reacts with sea water to produce carbonic acid. The increase in acidity changes the balance of minerals in the water and makes it more difficult for corals and plankton to produce the mineral calcium carbonate, which is the primary component of their hard skeletons and shells. Resulting declines in coral and plankton populations can change marine ecosystems and ultimately affect fish populations and the people who depend on them. Signs of damage are already starting to appear in certain areas.

Measurements made over the last few decades have demonstrated that ocean carbon dioxide levels have risen in response to increased carbon dioxide in the atmosphere, leading to an increase in acidity.”

NOAA Ocean Acidification Program:

“Ocean acidification is occurring because our ocean is absorbing carbon dioxide from the atmosphere, leading to lower pH and greater acidity. This is causing a fundamental change in the chemistry of the ocean.

Since the industrial revolution, the atmospheric concentration of carbon dioxide has increased from 280 to over 400 parts per million due to the burning of fossil fuels such as coal, gas, and oil, along with land use change. Ocean acidification refers to a change in ocean chemistry in response to the uptake of increasing carbon dioxide (CO₂) in the atmosphere. The world’s surface ocean is tightly linked with the atmosphere and absorbs huge amounts of carbon dioxide each year. This exchange, in part, helps to regulate the planet’s atmospheric CO₂ concentrations, but comes at a cost for the oceans and life within it; from the smallest, single celled algae to the largest whales. Were it not for ocean uptake of CO₂, atmospheric CO₂ levels would be increasing at an even greater rate than they are now.”

NOAA Pacific Marine Environmental Laboratory Carbon Program:

“Since the beginning of the Industrial Revolution, the pH of surface ocean waters has fallen by 0.1 pH units. Since the pH scale, like the Richter scale, is logarithmic, this change represents approximately a 30% increase in acidity. Future predictions indicate that the oceans will continue to absorb carbon dioxide and become even more acidic. Estimates of future carbon dioxide levels, based on business as usual (BAU) emission scenarios, indicate that by the end of this century the surface waters of the ocean could be nearly 150% more acidic, resulting in a pH that the oceans haven’t experienced for more than 20 million years.”

Do you accept the findings of these experts that:

- a. The human-caused increase in atmospheric carbon pollution is directly related to decreases in ocean pH (ocean acidification)?

- b. Oceans are currently acidifying at a rate unprecedented in tens of millions of years?
- c. Ocean acidification is damaging coral reefs worldwide, important habitats for recreation, tourism, and commercial fishing?
- d. Ocean acidification is harmful to marine ecosystems, negatively affecting fish populations and the communities who depend on them?
- e. If you do not agree with any of these statements, please identify the evidence, studies, or analyses you are relying upon to justify your position.

Given the short schedule provided for responding to these questions, and given the substantial number of complex questions, I have not had time to review the sources to which you refer in this question.

111. Since 2009, the states participating in the Regional Greenhouse Gas Initiative (RGGI) have seen carbon pollution fall by 18% while their economies grew by 9.2%. Emissions in the other 41 states fell by 4% while their economies grew by 8.8%.
- a. Do you agree that RGGI has developed a successful model for growing our states' economies and cutting carbon pollution at the same time?
 - b. Do you believe funding levels for EPA grant programs that fund state level initiatives to reduce their emissions should remain level, be increased, or be decreased?

The very low allowance prices under RGGI and the similar performance in other states suggest that RGGI is not a driving factor in these statistics. If confirmed, I will manage OAR's programs within the authorities and budget provided by Congress, including STAG grants.

112. EPA operates multiple networks to monitor compliance with the Clean Air Act's National Ambient Air Quality Standards and to track hazardous air pollutants regulated under the act. These networks include, among others, the State and Local Air Quality Monitoring Network, the National Air Monitoring Network (which targets areas of high population density with a variety of air pollution sources), Special Purpose Monitoring Stations (used for short-term studies and other purposes), Photochemical Assessment Monitoring Stations (used to measure pollutants that contribute to ground-level ozone, a harmful air pollutant), and the National Air Toxics Trends Stations.
- a. What is your vision for air monitoring?
 - b. Do you believe funding at EPA for these important monitoring networks should remain level, be increased, or decreased?

- c. Under your leadership, will you push for greater inclusion of technology-based tools for compliance monitoring and implementation, including electronic reporting and additional air monitors?

Actual air monitoring data is far preferable to modeling or other forms of estimation. The question of compliance monitoring is primarily the responsibility of the Office of Enforcement and Compliance Assurance, with which I will work closely, if confirmed. With regard to budget, if confirmed, I will manage OAR's programs within the authorities and budget provided by Congress.

113. Section 105 grants provide significant funding to states for implementing the Clean Air Act requirements. EPA is proposing a new formula for how the 105 grants are distributed to each of the regional offices (and subsequently to the states). Region 1, where Rhode Island receives its funding from, will receive a smaller percentage of the total 105 funds under this revised formula. EPA is proposing an implementation approach that would limit regional losses to no more than 2.5% from each region's prior year amount. Region 1 will lose 2.5% for, at least, each of the next five fiscal years and possibly ten years, under this proposed approach. Will you commit to not implementing the new formula until and unless there is sufficient overall funding such that no Region will see reduced funding from the prior year's amount?

If confirmed, I will manage OAR's programs within the authorities and budget provided by Congress, including STAG grants.

114. The Clean Air Act regulates air emissions from stationary and mobile sources, protecting public health and ensuring Americans have safe air to breathe. Concentrated animal feeding operations (CAFOs) may emit air pollutants in high enough quantities to subject them to CAA and other statutory requirements.

- a. Do you believe CAFOs pollute the air?
- b. Do you believe it is important for EPA, state and local agencies, and the public to know what air quality and health risks are posed by animal feeding operations?
- c. Will you commit to ensuring that the law is enforced with regards to CAFOs.

CAFOs emit a number of CAA-regulated air pollutants. CAFOs also are different than most other stationary sources regulated under the CAA. These differences must be carefully considered in crafting any CAA-based regulatory requirements.

115. On September 19, 2017, the EPA Office of Inspector General (OIG) released a report on EPA's attempts to develop reliable emission estimation methods (EEMs) to determine

whether animal feeding operation are subject to or comply with Clean Air Act permit requirements or emission reporting requirements under CERCLA or EPCRA (Report No. 17-P-0396). On June 23, 2017, the Office of Air and Radiation agreed with OIG's recommendations and OIG has accepted its planned corrective actions. If confirmed, do you commit to ensuring EPA fulfills its commitment to implement the actions laid out in OAR's June 23, 2017 letter to OIG?

I am not familiar with the OIG report or OAR's response. If confirmed, I will take time to familiarize myself with these materials and this issue.

116. OIG's September 19, 2017 report (Report No. 17-P-0396) on animal feeding operations cited a lack of EPA agricultural air expertise and committed resources as a factor in delays in developing emission estimating methodologies.

- a. Given President Trump's proposed cuts to EPA's budget, how do you envision implementing the actions agreed to by OAR in Report No. 17-P-0396?
- b. What is your vision for protecting public health by ensuring animal feeding operations are meeting CAA and other statutory requirements?

I am not familiar with the OIG report, so cannot comment on its findings. In my experience, OAR career staff and executives have ample experience and expertise with agricultural issues, including those arising at CAFOs.

117. Until recently, Carl Icahn served as a special advisor to the President on overhauling regulations. Carl Icahn is also a majority owner of CVR Energy which is an oil refiner that has a compliance obligation under the RFS to blend its oils with renewable fuels. Icahn's company has repeatedly benefited when he has proposed changes to the RFS that would benefit CVR and through speculation in the Renewable Identification Numbers (RINs) market. For example, in February of 2017 Mr. Icahn reportedly presented the White House with draft Executive Order language that would reform the RFS to benefit CVR energy. The same day, CVR's stock value increased by 3.5%, representing a multi-million dollar windfall to Icahn.

- a. Please describe any interactions you've had with Carl Icahn, CVR Energy, Valero, or other entities about the RFS in the past two years.
- b. Do you think it is appropriate for an Administration official like Mr. Icahn to propose making changes to EPA regulations that clearly benefit a company he owns?
- c. If you are confirmed as AA of OAR, and Carl Icahn or CVR Energy approaches you about a matter related to the RFS, do you think would be appropriate to talk with him?

- d. Will you commit to not talking with Carl Icahn about the RFS?

I have had no interactions with Carl Icahn, CVR Energy, or Valero on the RFS in the past two years. I do not recall interactions with other entities on the RFS in the past two years, although I occasionally offer implementation advice to clients on the RFS. If confirmed, I fully intend to have an open door policy on all issues, which might include meetings with both proponents and opponents of the RFS.

118. Since July, EPA has submitted two different proposals that would lower the volumes for biodiesel and renewable diesel. Congress told EPA to increase the volumes of biodiesel and renewable diesel, and both the President and Administrator Pruitt have pledged their support for the RFS. How do you explain EPA's actions?

I am not involved in EPA's decisions about RFS implementation, so I cannot explain their current thinking.

119. In your professional career you have specifically worked against the interests of biofuels and have represented the petroleum sector in multiple law suits. As Assistant Administrator how would the biodiesel and renewable diesel industries get a fair hearing from you?

Comprehensive rules of ethics govern the transition from private practice to government service. If confirmed, I will work closely with EPA ethics officials to understand and strictly comply with my ethical obligations. Further, I commit to implementing an open door policy in meeting with all relevant stakeholders within OAR and will work to faithfully implement all aspects of the CAA, including the RFS in an impartial manner.

120. In July, the DC Circuit Court in ACE vs. EPA said, EPA can't use general waive authority to regulate supply under the RFS. Yet in the most recent proposal from EPA, EPA is proposing exactly that and is working to use general waive authority to decrease the volumes based on supply. Clearly we have billions of gallons of biodiesel and renewable diesel that qualify for the program and are ready to be produced here in the United States, in Canada and throughout the world. Isn't EPA setting itself up for another lawsuit?

I am not familiar with EPA's recent RFS proposals or on the Agency's view as to how they relate to the recent court decision.

121. The EPA has signaled its planned rejection of the proposal to change the point of obligation under the law. The Agency has yet to issue a decision. If confirmed, will you finalize and issue the Agency's rejection of this proposal, and if so, when? Have you ever expressed a view on proposals to change the point of obligation and if so, what was it?

I expressed a view on this topic when the RFS1 rules were established during my prior tenure at EPA. At that time, I supported the point of obligation that, then and

now, is contained in the rules. I have not expressed a view on the possibility of changing the point of obligation. I cannot prejudge any decision that might be made by EPA if I am confirmed.

122. On September 26, the EPA issued a Notice of Data Availability that proposed to make significant, substantial changes to its proposed 2018 RVO and provided for a 15-day comment period. NODAs are generally used to provide data and supplement information in the record. In this case, the EPA has proposed to make material changes to its original proposal, offering stakeholders only 15 days to comment on something that, if adopted, would negatively impact the U.S. biodiesel industry and set the stage for unjustified reductions in perpetuity. In your experience, is this a typical use of a NODA, and can you give me another example when the EPA has used a NODA in this manner? Do you believe that 15 days is an appropriate comment period for a proposed rule under the RFS? In your opinion, is inventing a new methodology to justify a pre-determined outcome an appropriate process to apply in EPA rulemakings under the RFS?

I do not know why EPA decided to issue a NODA rather than a supplemental proposal. What matters most is whether interested parties have received adequate notice of a possible rule change. I believe the NODA provided such notice. The CAA does not specify a minimum period for public comments. I know that issuing RVOs takes a lot of work and meeting the annual schedule is always a challenge. A short comment period on a set of narrow issues may be what is needed to keep this rule on schedule.

123. Do you believe methane is a greenhouse gas? What is methane's global warming potential, and from what source does that number come?

Yes, methane is a GHG. When it established NSPS limits on methane for the oil and gas industry, EPA estimated the global warming potential of methane to be 25. See, 81 Fed. Reg. 35824, 35827 (June 3, 2016).

124. Is it your understanding that EPA will enforce the methane rule on a case-by-case basis? Please explain how EPA's case-by-case approach to compliance with the Methane Rule is consistent with EPA's "No Action Assurance" policy, which dates back to 1984.

I do not know what it means to "enforce the methane rule on a case-by-case basis." I have no official knowledge of EPA potentially issuing a no-action assurance with regard to aspects of the "Quad Oa" methane rule, nor am I aware that any such document has been issued.

125. Which states have been delegated enforcement authority over the Methane Rule? What oversight and/or assistance will EPA provide these states to ensure that regulated entities are complying with the rule?

I do not know which states have been delegated enforcement authority for the

Methane Rule. When such delegation is made, EPA retains authority to interpret and enforce the rule.

126. What types of reports and notifications should EPA require states with delegated enforcement authority to submit to the agency to ensure that the states are enforcing the methane rule?

The rules (such as they are) that govern delegation appear at 40 CFR Part 60 Subpart A.

127. Administrator Pruitt has been criticized for spending a disproportionate amount of his time meeting with industry and virtually no time with public-interest groups. If confirmed, will you commit to meet with and listen to all parties, including environmental and public health groups, in a balanced fashion?

If confirmed, I fully intend to have an open door policy on all issues.

128. If confirmed, do you commit to notifying the Committee of all of the email addresses you plan to use upon confirmation and within seven days of using a new email address, including any aliases or pseudonyms? Do you commit to conducting all business using official email addresses and other means and to refrain from any mediums that are outside the Freedom of Information Act's reach?

I intend to conduct all official business using my published EPA e-mail address. I do not intend to use my personal e-mail address or any pseudonym.

129. Do you believe the U.S. should remain a party to the United Nations Framework Convention on Climate Change?

The UNFCCC is a treaty. The US Department of State has primary responsibility for treaties. I defer to State on this issue.

130. Do you believe the U.S. should remain a party to the Paris Agreement?

The Paris Agreement is an international agreement. The US Department of State has primary responsibility for such matters. I defer to State on this issue.

131. If confirmed, do you commit to providing complete and accurate responses to inquiries from EPW members in a timely fashion.

Administrator Pruitt has made responsiveness to Congress an important priority. The 2800 pages of EPA responses provided to Members of the Environment and Public Works Committee on display at the nomination hearing is a testament to this commitment. Accordingly, I will continue to be a part of EPA's transparent and responsive culture.

132. Do you think there should be a standardized social cost of carbon? Is the social cost of carbon greater than zero dollars per metric ton? If so, what is the most accurate social cost of carbon in 2017 and what is the best way to calculate this number?

EPA develops benefits estimates for many CAA-regulated pollutants. The “social cost of carbon” is a benefits estimate and it would be consistent with EPA practice to develop such a value. I do not know enough about the underlying data to suggest an appropriate value. It is worth noting that the global scale, long lag time, and indirect nature of the effects of GHG emissions make it particularly difficult to develop a reliable benefits estimate, as compared to other CAA pollutants, which have more direct and immediate effects.

133. A 2007 legal challenge prompted the courts to direct the government to further quantify the costs and benefits of a ton of carbon pollution in federal government rulemakings. Specifically, the U.S. Court of Appeals for the 9th Circuit agreed that in quantifying the benefit of cutting carbon pollution but admonished that the value is “certainly not zero.”²⁴ The Court asked National Highway Traffic Safety Administration to do a new rule that addressed this issue. This court decision has led the Bush and Obama Administrations to further refine a value for the SCC. Do you agree with the reasoning in this decision?

- a. If no, please explain why not and how that would affect how you would approach your responsibilities.

I am not familiar with that decision. As noted above, there are many challenges to developing a reliable benefits estimate for GHGs.

134. In 2009, the Obama administration created an interagency working group (IWG) in an effort to create a governmental value for the social cost of carbon, which based its calculations on peer-reviewed economic models and expert opinions. The models included in their analysis were the Dynamic Integrated Climate-Economy (DICE)²⁵, Policy Analysis of the Greenhouse Effect (PAGE)²⁶, Climate Framework for Uncertainty, Negotiation and Distribution (FUND)²⁷, and World Induced Technical Change Hybrid (WITCH)²⁸ models. The IWG was comprised of scientists and economists from the Office of Management Budget, the Council for Environmental Quality, the National Economic Council, the EPA, the U.S. Department of Agriculture, Energy, Transportation, and Treasury.

- a. Can you discuss whether you think the models used by the IWG are appropriate and credible tools for calculating the social cost of carbon?

²⁴ *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 508 F.3d 508, U.S. Court of Appeals for the 9th Circuit (2007), available at <http://caselaw.findlaw.com/us-9th-circuit/1024716.html>.

²⁵ Dynamic Integrated Climate-Economy model (DICE), <http://www.econ.yale.edu/~nordhaus/homepage/dicemodels.htm>

²⁶ Policy Analysis of the Greenhouse Effect (PAGE), <http://climatecolab.org/resources/-/wiki/Main/PAGE>

²⁷ The Climate Framework for Uncertainty, Negotiations and Distribution (FUND), <http://www.fund-model.org/>

²⁸ World Induced Technical Change Hybrid model (WITCH), <http://www.witchmodel.org/>

- b. Can you comment on whether the IWG was comprised of the right governmental stakeholders and actors?

I am not familiar with the models used by the IWG. I believe it is appropriate to be inclusive in establishing a benefits estimate for GHGs.

135. On March 28, 2017, the President issued a Presidential Executive Order on Promoting Energy Independence and Economic Growth, which disbanded the IWG, withdrew the guidance it issued, and reverted to OMB Circular A-4 of September 17, 2003 (Regulatory Analysis). This in effect requires each agency to estimate the value of changes in greenhouse gas emissions resulting from regulations. Do you believe the regulatory process will be more effective and efficient in the absence of unified guidance on how to monetize the value of changes in greenhouse gas emissions?

Any benefits estimate – even if developed as part of an EPA rule – likely will be developed in coordination and conjunction with other departments and agencies.

136. Part of the social cost of carbon calculation assumes a value for discount rates. The IWG after reviewing past OMB guidance recommended using a 3% discount rate²⁹.
- a. Do you have an opinion on what the discount rate value should be when calculating the social cost of carbon?
 - b. Scientific research has found that it would be more accurate to use a declining discount rate instead of a fixed one. Do you agree that a declining discount rate would be more accurate?
 - c. Do you have an opinion on what the discount rate value should be used for inter-generational impacts?

I currently do not have an opinion on the proper discount rate.

137. Do you believe that it is appropriate for a cost-benefit analysis to consider the harm caused in other countries from pollution emitted in the United States?

The CAA has provisions that address international pollution transport. For example, CAA § 179B deals with “international border areas.” I believe that international pollution transport and effects should be addressed as specified by the Act.

²⁹ Interagency Working Group on Social Cost of Greenhouse Gases, *Technical Support Document*, pp. 15–16.

Senator Wicker:

138. As you consider policies at the EPA that affect emissions, will you consider the future uses of biomass in the U.S. as part of the power generation mix? Will you consider and institute policies related to emissions that will allow new market opportunities for American biomass and wood pellet resource?

Biomass is an important domestic source of fuel for power generation. It has been and will continue to be considered as EPA formulates policies and emissions control programs for the power sector.

139. For most of its existence, the ENERGY STAR program has been housed at EPA. Since a 2009 MOU between EPA and DOE, EPA has been administering the voluntary ENERGY STAR program on home appliances.

I am concerned about the proposals to move the ENERGY STAR program for home appliances to DOE. There is the potential that this change could result in inefficiencies and lead to additional regulatory burdens. In particular, DOE may not update specifications to incorporate evolving technologies as EPA has through the voluntary program in partnership with stakeholders.

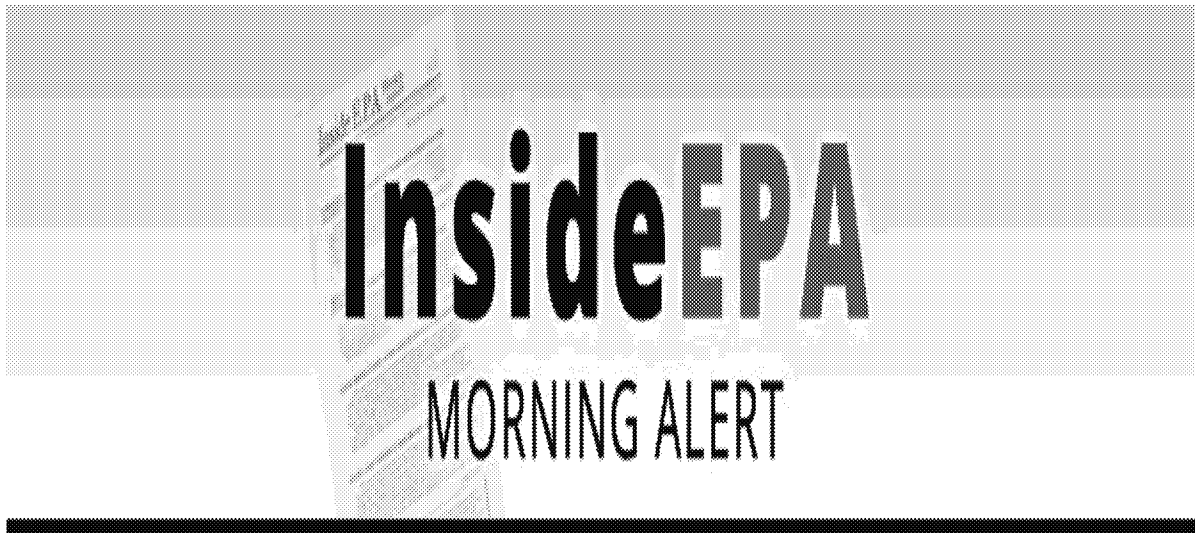
Can you share your perspective on this issue?

ENERGY STAR is a unique and successful program. Its ongoing success highly depends on maintaining credible specifications for covered products and services. Responsibility for implementing ENERGY STAR is split between EPA and DOE. Close coordination is vital to effective program implementation. If confirmed, I intend to make such coordination a priority.

Message

From: Dominguez, Alexander [dominguez.alexander@epa.gov]
Sent: 8/21/2018 10:56:20 AM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]
Subject: FW: The Morning Headlines from InsideEPA.com -- August 21, 2018

From: InsideEPA.com
Sent: Tuesday, August 21, 2018 6:56:18 AM (UTC-05:00) Eastern Time (US & Canada)
To: Dominguez, Alexander
Subject: The Morning Headlines from InsideEPA.com -- August 21, 2018



REDEFINING EPA: Overhauling an agency and its mission -- Complete coverage

August 21, 2018

Latest News

Critics See Legal Vulnerabilities In EPA's Looming CPP Replacement Plan

EPA's upcoming proposal to replace the Obama-era Clean Power Plan (CPP) is expected to be riddled with legal vulnerabilities, critics say, including that it may be viewed as "arbitrary and capricious" because officials likely will not be able to demonstrate actual emissions cuts, and the rule could increase greenhouse gases and conventional pollutants.

Leaked Talking Points On CPP Replacement Stress GHG Cuts, NSR Relief

A leaked copy of White House talking points to support EPA's proposal to replace the Obama-era Clean Power Plan (CPP) shows that the administration intends to stress that greenhouse gases will continue to fall under the new rule and that the agency is giving permitting relief to plants that make efficiency upgrades to cut GHGs.

Industry, States Rush To Limit Scope Of Decision Reviving 2015 CWA Rule

Industry groups and states opposed to the 2015 Clean Water Act (CWA) jurisdiction rule are scrambling to contain the federal district court decision that scrapped the Trump EPA's attempt to delay its enforcement in 26 states, with critics appealing the order and urging other courts to block the rule's enforcement.

EPA Seeks Input On Proposal To Bolster Texas' SO2 Regional Haze Trading

EPA is seeking public input on a proposal aimed at bolstering the rationale for approving Texas' use of an intrastate sulfur dioxide (SO2) emissions trading program to satisfy regional haze reduction mandates, while also asking for comment on alternatives including source-specific emissions limits sought by environmentalists.

EPA Critiques Could Heighten Legal Risk for Vehicle GHG Rollback Plan

Sharp EPA critiques of the Trump administration's proposal to roll back vehicle greenhouse gas and fuel economy limits could jeopardize the plan in court if the final rule does not adequately address the agency's concerns about the measure's technical foundation, according to multiple legal experts.

Lawyers Warn Companies On Global Impacts Of California Prop. 65 Rules

Industry attorneys are warning companies around the world that they could be impacted by a revised set of California Proposition 65 warning requirements that take effect Aug. 30, including provisions that are expected to shift large cost impacts and liability from retailers to upstream manufacturers and distributors of a host of consumer products.

Daily Feed

EPA sends AFO air reporting exemption proposal to OMB

The White House is reviewing an EPA proposal that would exempt animal feeding operations from reporting requirements under the federal community right-to-know law.

6th Circuit denies rehearing in landmark toxic tort case

The decision lets stand a ruling that attorneys say is significant because it goes even further than other courts that have adopted a "broad" view of certifying class actions.

Lawyers contest California rule exempting coffee from Prop. 65

Trial lawyers are faulting California's proposal to allow coffee sales in the state without requiring a cancer warning label under its landmark Proposition 65 program.

Ewire: EPA's CPP replacement to cut tiny fraction of GHGs

In today's Ewire: One report says the narrow replacement rule would cut only between 0.7-1.5 percent of power sector GHGs by 2030, from 2005 levels.

EPA actions resolve IG's BEACH Act recommendations

Following discussions with the Inspector General, EPA has committed to updating guidance on agency records management and resuming sending reports to Congress on the coastal waters grant program.

Read all the latest EPA news, analysis and documents →

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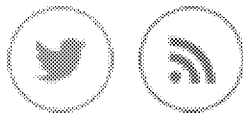
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From: Dominguez, Alexander [dominguez.alexander@epa.gov]
Sent: 9/20/2017 11:23:47 AM
To: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Greenwalt, Sarah [greenwalt.sarah@epa.gov]
Subject: FW: Morning Energy, presented by the Nuclear Energy Institute: Long time, no FERC — EPW nomination hearing shelved for now — Upton leaning toward Michigan Senate bid

From: Hand, Shane [mailto:Shane.Hand@mail.house.gov]
Sent: Wednesday, September 20, 2017 7:17 AM
To: Dominguez, Alexander <dominguez.alexander@epa.gov>
Subject: Fwd: Morning Energy, presented by the Nuclear Energy Institute: Long time, no FERC — EPW nomination hearing shelved for now — Upton leaning toward Michigan Senate bid

Begin forwarded message:

From: POLITICO Pro Energy <politicoemail@politicopro.com>
Date: September 20, 2017 at 5:44:02 AM EDT
To: <shane.hand@mail.house.gov>
Subject: **Morning Energy, presented by the Nuclear Energy Institute: Long time, no FERC — EPW nomination hearing shelved for now — Upton leaning toward Michigan Senate bid**
Reply-To: POLITICO subscriptions <reply-fe9413707663077e71-630326_HTML-801437100-1376319-0@politicoemail.com>

By Anthony Adragna | 09/20/2017 05:42 AM EDT

With help from Darius Dixon, Eric Wolff and Alex Guillén

BACK TO FERC: At long last, after six months without a quorum, FERC is holding its first monthly meeting since January. Absence makes the heart grow fonder, so expect particularly long security lines. FERC bumped this month's meeting up a day in order to accommodate Rosh Hashanah, which begins tonight, but the commission will return to its normal every-third-Thursday lineup next month.

So, what's actually on today's agenda? Not a ton. The agenda is of average length: 23 electric items, including tariff changes, rehearing orders and three reliability standard rulemakings. Given the destruction left in the wake of Hurricanes Harvey and Irma, the standard on emergency preparedness and operations got our attention: NERC has asked FERC to approve a rule submitted in March that seeks to clarify what kind of damage and threats to electric facilities are reported, and when. FERC is also poised to act on a request to revise the terms of the SunZia Southwest transmission project, whose owners are aiming to transmit at least 1,500 megawatts of New Mexican wind power capacity farther west.

Where's the meat? While working at less than 110 percent after such a long period might seem a little slow to ME, if the agency wants to chip away at its backlog, a half-dozen industry

types and energy lawyers that regularly deal with FERC said to be patient, considering how much there is for four new commissioners and new staff to take in. (FERC chairman nominee Kevin McIntyre and Democratic commissioner pick Rich Glick sailed through the Senate energy committee Tuesday but their approval by the full Senate is still up in the air.)

The agency has churned out more than 65 "notational" orders since Chairman Neil Chatterjee and Commissioner Rob Powelson were sworn in last month, including its approval of the NEXUS natural gas pipeline project, three settlements, and the move to rescue Millennium's Valley Lateral project. On Thursday, Chatterjee told reporters FERC has a "great strategy in place in working through these orders" and defended the agency's pace so far. The truly meaty issues of market compensation for power plants and how FERC wants to address the impacts of large state energy programs, like those in New York and Illinois, are likely to sit tight until all leadership table seats are filled.

Let there be protesters: Although the anti-FERC crowd didn't show up at Senate Energy and Natural Resources to disrupt Tuesday's vote on the remaining agency nominees, protesters seem like they want to make up for it today. Protesters sent out a notice on Tuesday saying they will "greet" FERC commissioners outside the headquarters starting at 8:30 a.m. and "will then take their concerns into FERC's open public meeting." The party starts at 10 a.m. at FERC headquarters, 888 First St., NE, and will be webcast [here](#).

WELCOME TO WEDNESDAY! I'm your host Anthony Adragna, and Bracewell's Frank Maisano identified Justice Earl Warren as the one-time Emmy host. For today: What future president once made an appearance on *Laugh-In* as part of a push to rehabilitate his image? Send your tips, energy gossip and comments to aadragna@politico.com, or follow us on Twitter [@AnthonyAdragna](#), [@Morning_Energy](#) and [@POLITICOPro](#).

EPW NOMINATION HEARING POSTPONED: After the Senate opted to adjourn earlier than expected in recognition of Rosh Hashanah, the Environment and Public Works Committee delayed a planned hearing for EPA and Nuclear Regulatory Commission nominees slated for today, Pro's Alex Guillén [reports](#). The panel declined to say when the session would be rescheduled, though William Wehrum's nomination to run the air office and Michael Dourson's selection to run its chemical efforts are still expected to be most controversial.

Speaking of which, four environmental groups — Earthjustice, the League of Conservation Voters, NRDC and Sierra Club — sent a [letter](#) to senators opposing the Wehrum nomination. "While he served in senior leadership positions with the EPA air program, courts held the agency in violation of the federal Clean Air Act 30 times," they wrote. "In private practice with corporate law firms, Mr. Wehrum has represented industrial interests in nearly 35 lawsuits that sought to weaken or void EPA clean air and public health safeguards. Americans deserve better for the nation's chief clean air official."

MACRON: WE WON'T RENEGOTIATE PARIS DEAL: While he said he "profoundly respects" Trump's decision to leave the Paris climate agreement, French President Emmanuel Macron told the U.N. General Assembly that the accord would not be renegotiated and "we won't go back." He added that "the door will always be open" for Trump to discuss the issue and added the agreement could be strengthened with new commitments from other countries.

ICYMI: Trump used his U.N. General Assembly to stress the U.S. was open to further actions to cripple Venezuelan President Nicolas Maduro's regime, hinting at possible further sanctions. "We are prepared to take further action if the government of Venezuela persists on its path to

impose authoritarian rule on the Venezuelan people," the president said. "I ask every country represented here today to be prepared to do more."

BABY STEPS FOR CLIMATE HAWKS: Sens. [Lindsey Graham](#) and [Sheldon Whitehouse](#) are working together on a carbon tax bill, the South Carolina Republican told a conference in Connecticut on Tuesday, according to [Time](#). "I believe that the greenhouse effect is real, that CO2 emissions generated by man is creating our greenhouse gas effect that traps heat, and the planet is warming," said Graham. "A price on carbon—that's the way to go in my view." He pledged to discuss the idea with the White House. Whitehouse, in response, [tweeted](#): "Lots of work to do, but this is a good step."

**** A message from the Nuclear Energy Institute:** Nuclear is doing more than ever before. It's powering the grid, boosting the economy by billions, creating jobs, propelling space travel and even helping doctors. It's moving us forward in ways we never thought possible. Explore all nuclear energy is doing at [discovernuclear.com](#). **

NORTHAM DODGES ON PIPELINE STANCE: Asked twice during Virginia's gubernatorial debate whether he backed the Atlantic Coast pipeline, Lt. Gov. Ralph Northam wouldn't clearly answer. Upon pressing from NBC's Chuck Todd, the best he could offer was "I have been as clear as I can" that if done with adequate environmental safeguards "then I do support them."

UPTON LEANING TOWARD SENATE BID: Republican Rep. [Fred Upton](#), former Energy and Commerce Committee Chairman, is reportedly 90 percent sure he'll give up his powerful House perch to launch a challenge to incumbent Democratic Sen. [Debbie Stabenow](#), [WHTC reports](#). The Michigan outlet reports the congressman's family has given their blessing to a Senate run, though it says a decision will wait until late fall at the earliest. "He continues to explore all of his options and is busy with a packed schedule back here and in D.C.," Tom Wilbur, his communications director, said in a statement.

GRIJALVA ARRESTED AT TRUMP TOWER: House Natural Resources Committee ranking member [Raul Grijalva](#) was among a group of Democratic congressmen arrested outside Trump Tower on Tuesday during decision to halt DACA, POLITICO's Louis Nelson [reports](#). Joining Grijalva in what they called "civil disobedience" were Rep. [Luis Gutierrez](#), [Adriano Espaillat](#) and Speaker of the New York City Council Melissa Mark Viverito.

DEMOCRAT RAISES CONCERNS OVER ACCURACY OF ZINKE'S REPORT: A BLM official said Tuesday the agency did not fact check Interior Secretary Ryan Zinke's report on national monuments before it went to the White House for review. Sen. [Martin Heinrich](#) originally raised questions about "more than a few simple factual errors included" in Zinke's analysis. John Ruhs, BLM's acting deputy director of operations, then said his agency was "not part of the writing of the reports" but "did answer questions and provide data as necessary." Video of the exchange during an Energy and Natural Resources Committee hearing, flagged by the Center for Western Priorities, is available [here](#).

Interesting call: Interior employees now have the opportunity arcade game "Big Buck Hunter Pro" in their cafeteria after Zinke announced its installation Tuesday and the "Secretary's Shotgun Showdown" to emphasize hunting and fishing at the agency. The winner gets bragging rights and a "Beverage on the Balcony" with Zinke (perhaps a [Moose Drool Brown Ale](#)). The Natural Resources Democrats shot back [on Twitter](#): "This is a crucial time for our national monuments & [@SecretaryZinke](#) is tweeting about playing an arcade game."

MAIL CALL! CONCERNS RAISED OVER SUPERFUND OVERSEER: Rep. Frank Pallone, top Democrat on the Energy and Commerce Committee, sent a letter to Pruitt raising concerns over the appointment of his senior adviser Albert Kelly to run the Superfund management task force given he settled with Federal Deposit Insurance Corporation this summer. "Despite this, Mr. Kelly has been selected as and remains in a senior role at the EPA and is tasked with protecting the solvency and continued effectiveness of the Superfund program and the Superfund Trust Fund," Pallone wrote. "These funds should not be entrusted to someone who has been barred from working for every financial institution from credit unions to Wall Street banks."

And questions of disaster readiness too: Seven members of the House Sustainable Energy & Environment Coalition sent a letter to Pruitt requesting information on how the agency is preparing toxic sites for extreme weather events, especially given calls for steep cuts to the EPA's budget. "We are concerned that efforts to reduce the Agency's staff and budget, along with plans to cut or eliminate climate mitigation and adaptation programs, will leave the Agency ill equipped to protect communities from the environmental hazards associated with extreme weather," they write.

TAX REFORM: SOLAR INDUSTRY FEELS DEPRECIATED: The solar industry's top priority in the tax reform discussion is to protect the investment tax credit, the benefit that lets developers take a credit worth 30 percent of the value of their solar array until the credit expires in 2022, Abigail Ross Hopper, CEO of the Solar Energy Industries Association, tells ME. But the Big Six tax writers want to the tax code to reflect "unprecedented capital expensing," meaning they want to accelerate how fast businesses can deduct the cost of assets.

But solar doesn't really want that, Ross Hopper said. It wants assets to depreciate at the current schedule so they can take the full ITC while it's still in existence. "We like the way it's set up now," Hopper told ME. "What we have been advocating for on the Hill is to be able to use current depreciation schedule with ITC rather than accelerated depreciation."

LATEST TWIST IN SOLAR TRADE CASE: Days before a crucial vote in the case, Solar Energy Industries Association sent a letter to the International Trade Commission saying the petitioners in the case — Suniva and SolarWorld — haven't submitted a plan for how they would benefit if tariffs were placed on solar imports. The group says the failure to submit a plan "evidences both a lack of respect for the process contemplated by the statute and an apparent inability to devise a genuine plan for the industry's adjustment to import competition." The R Street Institute released a short paper arguing the administration "should avoid imposing tariffs or other import restrictions on solar products

LISA JACKSON HITS PRUITT'S EPA: Former EPA Administrator Lisa Jackson told TechCrunch Tuesday the agency she used to run "hasn't changed" but that Pruitt is running it unlike any administrator has previously. "Every EPA administrator has committed to regulate transparently," she said at a conference in San Francisco. "We don't have that commitment anymore. It's not the EPA, it's that the leadership has decided to move away from the transparency that assures people that their health and their community come first rather than somebody else's bottom line."

EPA WATCHDOG DINGS SUPERFUND WORKER DISTRIBUTION: EPA needs to do a better job of allocating funding and jobs to Superfund sites that need the most attention, according to a new report from the agency's inspector general. Although the inquiry began last year and covers Superfund sites nationwide, the report was released in the wake of criticisms of EPA's response to hurricane-related damage at sites in Texas and Florida. Investigators

concluded that Superfund employees were not distributed according to current regional workloads, meaning some regions have had to slow their cleanup work amid a Superfund jobs shortage. Six of EPA's ten regions — including Region 6, which covers Houston — admitted their work has been slowed or delayed in recent years because of regional Superfund worker shortages. The IG recommended EPA consider a better way to prioritize Superfund sites nationally and distribute job funds accordingly, possibly like the system used by the Army Corps of Engineers for sites it cleans up. EPA said it would take action within a year.

PAST DUE: EPA's inspector general released a report Tuesday that the agency failed to follow through on a 2005 agreement with livestock groups to develop methodologies for estimating airborne emissions from farms, Pro Agriculture's Jenny Hopkinson reports. The watchdog said the agency had no timeline for completing the work, though EPA said it will develop by the beginning of 2018 a plan for when and how it will complete the emissions estimating methodologies.

MOVER, SHAKER: Anna Burhop has joined Bracewell's Policy Resolution Group as a partner in its Washington office where she'll offer federal legislative and regulatory advice. She comes from the American Chemistry Council and before that worked on the Senate Environment and Public Works Committee under both Sens. Jim Inhofe and David Vitter.

QUICK HITS

— Fire breaks out at Valero's Port Arthur, Texas, refinery. CNBC.

— National Guard chief: Climate change possibly causing 'bigger, larger, more violent' storms. The Hill.

— Farming district says it won't pay for Delta tunnels in a vote that could kill the project. Sacramento Bee.

— Icahn's oil refiner CVR starts unwinding biofuels bet. Reuters.

— Some question decision to keep Texas nuclear plant open during Harvey. Austin American-Statesman.

— What happens when the coal and nuclear plants close? Houston Chronicle.

— Caribbean oil terminals make preparations ahead of Hurricane Maria. Reuters.

HAPPENING TODAY

POSTPONED — Senate Environment and Public Works Committee holds hearing on various nominations, 406 Dirksen

1:00 p.m. — Virginia Citizens Consumer Council hosts press phone call urging Dominion to fully withdraw nuclear reactor plans, RSVP: mkarlin@hastingsgroup.com

4:00 p.m. — "Energy Security: New Market Realities," The Institute of World Politics, 1521 16th Street NW

THAT'S ALL FOR ME!

**** A message from the Nuclear Energy Institute:** Nuclear energy does amazing things every day. It adds billions to the economy. It powers cities, that power business, that power thousands of high quality jobs. With a little help from nuclear energy, we're propelling space travel to the farthest reaches of the galaxy. And nuclear energy is even helping doctors diagnose and treat patients. Nuclear is doing all of these things while keeping the air clean. Explore all the extraordinary things nuclear is doing to help push us forward at discovernuclear.com. Nuclear. Power the Extraordinary. **

To view online:

<https://www.politicopro.com/tipsheets/morning-energy/2017/09/long-time-no-ferc-024674>

Stories from POLITICO Pro

EPW postpones hearing on EPA, NRC nominees [Back](#)

By Alex Guillén | 09/19/2017 04:42 PM EDT

The Senate Environment and Public Works Committee has postponed Wednesday's planned hearing for EPA and Nuclear Regulatory Commission nominees because of plans for the chamber to adjourn in recognition of Rosh Hashanah.

The hearing was to consider four EPA nominees: Matthew Leopold to be general counsel, William Wehrum to run the air office, Michael Dourson to run the Office of Chemical Safety and Pollution Prevention and David Ross to run the water office. The panel would have also considered Jeff Baran's re-nomination to the NRC.

The committee did not immediately say when the hearing would be rescheduled.

To view online [click here](#).

[Back](#)

Democratic lawmakers arrested for protesting outside Trump Tower [Back](#)

By Louis Nelson | 09/19/2017 03:05 PM EDT

Three Democratic lawmakers were arrested Tuesday outside Trump Tower in Manhattan, where they were protesting President Donald Trump's decision to halt a program that extends work permits to undocumented immigrants brought to the U.S. as children.

A spokesman for Rep. Luis Gutierrez (D-Ill.) confirmed that the Chicago lawmaker had been arrested amid an act of "civil disobedience," and that he was joined in that act by Reps. Raul Grijalva (D-Ariz.), Adriano Espaillat (D-N.Y.) and Melissa Mark Viverito, the speaker of New York's city council.

A spokeswoman for Espaillat, the first member of Congress to have previously been an undocumented immigrant, confirmed that the New York lawmaker had been among those arrested as well. Photos circulating online appeared to show Grijalva being arrested as well,

although a spokeswoman for the Tucson, Arizona, lawmaker did not immediately return an email seeking confirmation that he had been.

"We're taking the necessary steps to make it clear to President Trump, the Republicans and the Democrats that we will continue this peaceful fight for DREAMers and immigrants as long as it takes to enact legislation and put DREAMers in a safe place," Gutierrez said in a statement issued via his spokesman. "A few Congressmen and elected-officials gathering in front of Trump Tower doesn't mean much if it is not backed up by the grassroots and allies and today we are standing with diverse allies to make sure Congress and the president do more than just talk about solutions, they actually follow through with action."

"Espaillat stood up for immigrant youth to say loud and clear - unequivocally, that he dedicates his work in Congress to protecting immigrants, immigrant families, and their future in America," Espaillat's spokeswoman, Candace Randle Person, said in a statement. "Since day one, the Trump Administration has threatened Latinos, Muslims, LGBT, women and the list continues. His decision to end the DACA program earlier this month increased the urgency of what's at stake and the lives at risk when we fail to speak out against racism in America."

Trump's decision earlier this month to rescind DACA, the Obama-era program that offered protections to so-called Dreamers, prompted an immediate outcry from Democrats and defenders of undocumented immigrants. The president's decision, announced by Attorney General Jeff Sessions, comes with a six-month delay, a window in which Trump has indicated he would like Congress to act to permanently protect Dreamers.

While the move to rescind DACA sparked ire towards the Trump administration, the White House has characterized the decision as compassionate, arguing that DACA was likely to be found unconstitutional and a court could have ended it without the six-month window left open by the president. Trump has also suggested that should Congress fail to act, he would "revisit this issue."

To view online [click here](#).

[Back](#)

IG finds EPA has failed since 2005 to develop livestock emissions assessment methods [Back](#)

By Jenny Hopkinson | 09/19/2017 05:13 PM EDT

EPA's Inspector General determined the agency has failed to follow through on a 2005 agreement with livestock groups to develop methodologies for estimating airborne emissions from farms — an effort intended to ensure compliance with the Clean Air Act and environmental emergency response statutes.

In a new [report](#), issued today, the IG found the industry followed through with its end of the agreement — developing emissions data for EPA under the National Air Emissions Monitoring Study — seven years ago. But EPA has yet to release any methodologies for estimating emissions, and has only drafted proposals for one-fourth of the pollutants named in the study, according to the IG report. Further, the IG said EPA has no timeline for completing the work.

The lack of emissions-testing methodologies will cause trouble for the agency now that it is being forced to require livestock farms to report emissions. In April a federal court vacated a Bush-era rule that exempted large animal farms from emissions reporting requirements. EPA has received an extension and will not have to meet the mandate to enforce reporting requirements until November, a delay it requested so it could develop guidance and standards for how farms will be required to report emissions.

In response to the IG's findings, EPA said it will develop by the beginning of 2018 a plan for when and how it will complete the emissions estimating methodologies, though it is not clear when the methodologies will be ready for farmers.

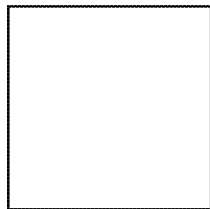
To view online [click here](#).

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Yes, very	Somewhat	Neutral	Not really	Not at all

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▪

▪

Message

From: Dunham, Sarah [Dunham.Sarah@epa.gov]
Sent: 6/22/2017 9:18:21 PM
To: Weekly Report Group [Weekly_Report_Group@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]; Millett, John [Millett.John@epa.gov]; Harvey, Reid [Harvey.Reid@epa.gov]; Grundler, Christopher [grundler.christopher@epa.gov]; Page, Steve [Page.Steve@epa.gov]; Edwards, Jonathan [Edwards.Jonathan@epa.gov]; Starfield, Lawrence [Starfield.Lawrence@epa.gov]; Kavlock, Robert [Kavlock.Robert@epa.gov]; Heard, Anne [Heard.Anne@epa.gov]
Subject: OAR Weekly Report
Attachments: OAR Weekly Report.062217.docx

OAR Weekly Report – June 22, 2017

Deliberative Process / Ex. 5

Upcoming Meetings, Public Events, or Other Public Releases

Deliberative Process / Ex. 5

- **National Air Emissions Monitoring Study (NAEMS)/Office of Inspector General (OIG) Response:** On Monday, I will be responding to an OIG report on the NAEMS, which was a data collection effort to evaluate air emissions from animal feeding operations (AFOs).

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Deliberative Process / Ex. 5

Message

From: Woods, Clint [woods.clint@epa.gov]
Sent: 10/24/2018 7:15:32 PM
To: Beach, Christopher [beach.christopher@epa.gov]
CC: Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]
Subject: Background on NAEMS/ Emission Estimating methodologies for AFO emissions

Deliberative Process / Ex. 5

Appointment

From: Jones, Mike [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=8A25F390B48B40C2A539157B1F2A7B2C-JONES, MICHAEL]
Sent: 2/22/2017 8:00:15 PM
To: Jones, Richard [Jones.Richard@epa.gov]
Subject: Accepted: EPA/OIG Discussion Document Meeting - AFO Air Emissions
Location: Teleconference
Start: 3/1/2017 7:00:00 PM
End: 3/1/2017 8:00:00 PM
Show Time As: Busy

Appointment

From: Jones, Mike [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=8A25F390B48B40C2A539157B1F2A7B2C-JONES, MICHAEL]
Sent: 5/16/2017 3:44:03 PM
To: Page, Steve [Page.Steve@epa.gov]
Subject: Accepted: NAEMS OIG Response
Location: RTP-OAQPS-C401A
Start: 5/23/2017 1:30:00 PM
End: 5/23/2017 2:00:00 PM
Show Time As: Busy

Appointment

From: Jones, Mike [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=8A25F390B48B40C2A539157B1F2A7B2C-JONES, MICHAEL]
Sent: 5/22/2017 12:01:36 PM
To: Page, Steve [Page.Steve@epa.gov]
Subject: Accepted: Pre-brief Steve on NAEMS OIG Response
Location: RTP-OAQPS-C401A
Start: 5/22/2017 2:45:00 PM
End: 5/22/2017 3:15:00 PM
Show Time As: Busy

Appointment

From: Jones, Mike [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=8A25F390B48B40C2A539157B1F2A7B2C-JONES, MICHAEL]
Sent: 5/22/2017 12:45:18 PM
To: Page, Steve [Page.Steve@epa.gov]
Subject: Accepted: Pre-brief Steve on NAEMS OIG Response
Location: RTP-OAQPS-C401A
Start: 5/22/2017 3:30:00 PM
End: 5/22/2017 4:00:00 PM
Show Time As: Busy

Appointment

From: South, Peter [Tsirigotis.Peter@epa.gov]
Sent: 2/6/2018 7:01:40 PM
To: Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Lassiter, Penny [Lassiter.Penny@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Mills, Kathy [Mills.Kathy@epa.gov]; Henigin, Mary [Henigin.Mary@epa.gov]; McLamb, Marguerite [McLamb.Marguerite@epa.gov]; Conner, Lisa [Conner.Lisa@epa.gov]; Johnson, Tanya [Johnson.Tanya@epa.gov]; McKinney, Voronina [mckinney.voronina@epa.gov]; StClair, Aimee [StClair.Aimee@epa.gov]; Eck, Janet [Eck.Janet@epa.gov]; Dolwick, Pat [Dolwick.Pat@epa.gov]; Harnett, Bill [Harnett.Bill@epa.gov]; Elkins, Joe [Elkins.Joe@epa.gov]; Jones, Mike [Jones.Mike@epa.gov]
Subject: CAFO IG Report
Attachments: AFO OIG Report Peter T prebrief 2_7_18.docx
Location: EPA RTP: C401A; call in 919 541-4105
Start: 2/7/2018 9:00:00 PM
End: 2/7/2018 10:00:00 PM
Show Time As: Tentative

Date of this Request: 01/29/2018

Scheduling Point of Contact: Tanya Johnson, 919-541-5536

Technical Point of Contact: Penny Lassiter, 919-541-5396

Subject: CAFO IG Report

Purpose: Provide overview of OAR responsibilities to OIG related to the CAFO National Air Emissions Monitoring Study (NAEMS) and upcoming action items.

- Next ADP Milestone: (specify early guidance, options selection, etc.); meeting scheduled on: __/__/__;
- If applicable, due date to: OP __/__/__ (__ days review); OMB: __/__/__ (days review);
- Legal deadline: __/__/__.
- Other firm deadline:

First possible date for meeting: 02/5/18

Last possible date for meeting: 02/9/18

Duration: 1 hour

Message

From: Strine, Lora [Strine.Lora@epa.gov]
Sent: 7/25/2018 4:32:20 PM
To: Blatcher, Tonya [Blatcher.Tonya@epa.gov]
CC: Jones, Mike [Jones.Mike@epa.gov]
Subject: FW: Documents for CMS
Attachments: OIG Cert Memo_17-P-0396_24Jul18.docx; OAQPS cert memo_17P0396_routing.pdf

Thanks Mike.

Tanya – do you want to upload them into the control? Please call me with any questions.

Thanks, Lora

From: Jones, Mike
Sent: Wednesday, July 25, 2018 10:25 AM
To: Strine, Lora <Strine.Lora@epa.gov>
Cc: Vincent, Marc <Vincent.Marc@epa.gov>
Subject: Documents for CMS

Hello, Lora. The attached documents are in response to an OIG audit. One is a certification memo from Bill Wehrum to Holly Greaves, and the other is the corresponding OAQPS approval routing. I request that these documents be entered into CMS, and routed to Maria Carroll and Sabrina Hamilton. Thanks much. Mike

Michael N. Jones
Acquisitions and Accountability
Central Operations and Resources
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711
Mail Code C404-02 | Phone: 919-541-0528

July 10, 2018

To Robin Dunkins
Fred Thompson
David Cozzie
Valerie Graves
Pete South
Peter Tsirigotis








From Mike Jones

Subject Certification Memo for OIG Audit Report No. 17-P-0396, "Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply with Clean Air Act and Other Statutes"

Action

Requested OAQPS Office Director Approval (initial above)

- ✓ Subject memo certifies that the four OAR corrective actions associated with the subject OIG audit report have been completed
- ✓ Memo adheres to format and content specified in EPA Manual 2750, Audit Management Procedures
- ✓ Reviewed and approved by OAR Audit Coordinator, Marc Vincent
- ✓ Following OAQPS Director approval, documents will be entered in CMS for routing through OAR for AA signature

Please return to Mike Jones when completed.

MEMORANDUM

SUBJECT: Certification Memo for Office of Inspector General (OIG) Report No. 17-P-0396, “Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply with Clean Air Act and Other Statutes,” Dated September 19, 2017

FROM: William L. Wehrum
Assistant Administrator

TO: Holly Greaves, Chief Financial Officer
Office of the Chief Financial Officer

The Office of Air and Radiation (OAR) certifies that the four OAR corrective actions specified in the September 19, 2017, OIG Report No. 17-P-0396, “Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply with Clean Air Act and Other Statutes,” have been completed. Attached are the corrective actions completed in response to the OIG’s recommendations. All relevant documentation to support each corrective action is available in OAR’s files.

Attachment

cc: Arthur A. Elkins, Jr.
Kevin Christensen
James Hatfield
Erica Hauck
Elizabeth Shaw
Peter Tsirigotis
David Cozzie
Jeff Whitlow
Robin Dunkins
Marc Vincent
Mike Jones

Corrective Actions Completed in Response to the OIG's Recommendations to the Assistant Administrator for Air and Radiation:

- **In accordance with EPA quality assurance guidance, conduct comprehensive systematic planning for future emission estimating methodology development through either the quality assurance project plan or pre-dissemination review processes. If the EPA chooses to develop a quality assurance project plan, it should first develop data quality objectives for the emission estimating methodologies. If the EPA chooses to conduct a pre-dissemination review, it should obtain independent, external feedback on the adequacy of its emission estimating methodologies development and plans prior to beginning the project.** OAR and ORD have initiated development of a quality assurance project plan (QAPP) for evaluation of the data and completion of the emission estimating methodologies (EEMs). As part of the QAPP development, appropriate data quality objectives will be defined. We intend to make this document publicly available on our website. **Completion Date:** March 29, 2018, and posted at <https://www.epa.gov/afos-air/qapp-development-emission-estimating-methodologies-air-emissions-animal-feeding-operations>.
- **Based on the results of systematic planning, determine and document the decision as to whether the EPA is able to develop scientifically and statistically sound emission estimating methodologies for each originally planned emission source and pollutant combination.** Completion of this task is contingent upon the results and decisions made during the QAPP development. Upon completion of the QAPP, OAR and ORD will determine which EEMs can be completed and the appropriate schedules for their completion. We intend to make the schedules publicly available on our website. **Completion Date:** June 29, 2018, and posted at <https://www.epa.gov/afos-air/national-air-emissions-monitoring-study#naems-status>.
- **For the emission source and pollutant combinations for which the Office of Air and Radiation determines it can develop scientifically and statistically sound emission estimating methodologies, establish public milestone dates for issuing each draft emission estimating methodology. For any emission source and pollutant combinations for which the Office of Air and Radiation determines that it cannot develop scientifically and statistically sound emission estimating methodologies, notify the Office of Enforcement and Compliance Assurance of that determination.** OAR will develop a schedule for completion of the EEMs after completion of data review and QAPP development, which is currently planned for completion in the second quarter of FY 2018. **Completion Date:** June 29, 2018, and posted at <https://www.epa.gov/afos-air/national-air-emissions-monitoring-study#naems-status>.

- **Provide the public with the status of emission estimating methodology development and the agency's planned next steps for analyzing the National Air Emissions Monitoring Study data and finalizing the emission estimating methodologies, including the completion of milestone dates for each draft emission estimating methodology it plans to develop.** OAR will post the schedule on our website for completion of the EEMs after completion of data review and QAPP development, which is currently planned for completion in the second quarter of FY 2018. We anticipate providing updates on our progress with subsequent website postings. Completion Date: June 29, 2018, and posted at <https://www.epa.gov/afos-air/national-air-emissions-monitoring-study#naems-status>.


Message


From: South, Peter [South.Peter@epa.gov]
Sent: 2/22/2017 7:38:04 PM
To: Jones, Mike [Jones.Mike@epa.gov]
CC: Alston, Lala [Alston.Lala@epa.gov]
Subject: OIG AFO meeting--Lala will request you be added. Thanks

Organizer: Dunham, Sarah Sent: Tue 2/21/2017 9:51

Subject: OIG Animal Feeding Operations Air Emissions Report

Location: WJC-N 5400 + Video with RTP Ex. 6 - Personal Privacy Participant Code Ex. 6 - Personal Privacy

Start time: Thu 2/23/2017  1:00 PM ☐ All day event

End time: Thu 2/23/2017  1:45 PM

To: Dunham, Sarah; Page, Steve; Koerber, Mike; Harnett, Bill; Tsigotis, Peter; Dunkins, Robin; Schrock, Bill; Sullivan, Tim; McKinney, Doug; Nunez, Carlos; Lewis, Josh
Cc: South, Peter; Henigin, Mary; Thompson, Fred; Srivastava, Ravi; McLamb, Marguerite; Conner, Lisa; Alston, Lala; Johnson, Tanya; McKinney, Voronina; StClair, Aimee; Eck, Janet



Dunham Meeting
Request-Office ...

Message

From: South, Peter [South.Peter@epa.gov]
Sent: 7/5/2017 5:10:44 PM
To: Jones, Mike [Jones.Mike@epa.gov]
CC: Koerber, Mike [Koerber.Mike@epa.gov]
Subject: FW: Response to the Office of Inspector General's Draft Report, Emissions From Animal Feeding Operations Remain Largely Uncharacterized More Than 7 Years After Study Completed (Project No. OPE-FY16-0018)
Attachments: OAR Response Memo to Draft IG AFO Report_062217_2.docx

As requested. Thanks.

From: Hamilton, Sabrina
Sent: Wednesday, July 05, 2017 12:53 PM
To: South, Peter <South.Peter@epa.gov>
Cc: Cortelyou-Lee, Jan <Cortelyou-Lee.Jan@epa.gov>; Bremer, Kristen <Bremer.Kristen@epa.gov>
Subject: RE: Response to the Office of Inspector General's Draft Report, Emissions From Animal Feeding Operations Remain Largely Uncharacterized More Than 7 Years After Study Completed (Project No. OPE-FY16-0018)

Peter,

Sorry for the delay. Attached is the memo in Word format.

Sabrina

Sabrina Hamilton
Air and Radiation Liaison Specialist
and FOIA Coordinator
Office of Air and Radiation - Correspondence Unit
U.S. Environmental Protection Agency (EPA)
1200 Pennsylvania Avenue, N.W. (6101-A)
Washington, D.C. 20460
Tel: (202) 564-1083
Fax: (202) 501-0600

From: South, Peter
Sent: Wednesday, July 05, 2017 9:31 AM
To: Hamilton, Sabrina <Hamilton.Sabrina@epa.gov>
Cc: Cortelyou-Lee, Jan <Cortelyou-Lee.Jan@epa.gov>; Bremer, Kristen <Bremer.Kristen@epa.gov>
Subject: FW: Response to the Office of Inspector General's Draft Report, Emissions From Animal Feeding Operations Remain Largely Uncharacterized More Than 7 Years After Study Completed (Project No. OPE-FY16-0018)

Hi Sabrina,

Would you be able to send me the MS Word version of the recent OIG memo? OIG has requested the Word version.

Thanks and call me with any questions.

Pete South
OAR/OAQPS/IO
U.S. EPA
office: 919 541-5359
cell: 919 599-7213

From: Hamilton, Sabrina

Sent: Friday, June 23, 2017 4:31 PM

To: Copper, Carolyn <Copper.Carolyn@epa.gov>

Cc: Cyran, Carissa <Cyran.Carissa@epa.gov>; Strine, Lora <Strine.Lora@epa.gov>; South, Peter <South.Peter@epa.gov>; Matthews, Barbara <Matthews.Barbara@epa.gov>; Carroll, Maria <carroll.maria@epa.gov>; Noonan, Jenny <Noonan.Jenny@epa.gov>; Lewis, Josh <Lewis.Josh@epa.gov>

Subject: Response to the Office of Inspector General's Draft Report, Emissions From Animal Feeding Operations Remain Largely Uncharacterized More Than 7 Years After Study Completed (Project No. OPE-FY16-0018)

Carolyn,

Attached for your information is a PDF copy of the signed memo from Sarah Dunham, Acting Assistant Administrator for OAR. The original copy will be sent to you through inter-office mail. If you have any problems opening the file, please let me know. Thanks

Sabrina

Sabrina Hamilton

Air and Radiation Liaison Specialist
and FOIA Coordinator

Office of Air and Radiation - Correspondence Unit

U.S. Environmental Protection Agency (EPA)

1200 Pennsylvania Avenue, N.W. (6101-A)

Washington, D.C. 20460

Tel: (202) 564-1083

Fax: (202) 501-0600

MEMORANDUM

SUBJECT: Response to the Office of Inspector General's Draft Report, *Emissions From Animal Feeding Operations Remain Largely Uncharacterized More Than 7 Years After Study Completed* (Project No. OPE-FY16-0018)

FROM: Sarah Dunham
Acting Assistant Administrator

TO: Carolyn Copper
Assistant Inspector General
Office of Program Evaluation
Office of Inspector General

The EPA's Office of Air and Radiation (OAR) appreciates the opportunity to review and comment on the Office of Inspector General (OIG) draft report titled "*Emissions From Animal Feeding Operations Remain Largely Uncharacterized More Than 7 Years After Study Completed.*" OAR agrees in general with the OIG's recommendations.

OAR's current task is the development of Emissions Estimating Methodologies (EEMs) for animal feeding operations (AFOs), using statistically-based methodologies to develop emissions factors for select types of AFOs from data collected through the National Air Emissions Monitoring Study (NAEMS). In partnership with the Office of Research and Development (ORD), we are undertaking this effort and incorporating a National Academy of Sciences (NAS) recommendation that the EPA develop an interim method for estimating emissions while we participate in a longer-term effort to develop process-based EEMs. In addition, our work will include objectives outlined in the 2005 Air Compliance Agreement (Agreement) the EPA entered into with participating AFOs. The AFO sectors represented in the Agreement covered the monitoring study costs. Individual participating AFOs did not directly pay monitoring study funds. The EPA remains committed to fulfilling this goal of developing EEMs for AFOs based on scientifically and statistically sound methods. The statistically-based EEMs must also be easily implemented by the agricultural community and other users, and be based on non-proprietary inputs.

While we generally agree with your characterizations of the Agreement and the associated NAEMS, there are a few places where information in the draft report is slightly unclear where the information differs from our understanding of specific facts. Please refer to the attached list of these instances and suggested revisions intended to help clarify and improve the draft report's accuracy.

Below are OAR's responses to the OIG's specific recommendations (recommendation numbers 1, 2, 3 and 5), which we developed in consultation with ORD. On June 9, 2017, OECA provided a separate response to recommendation number 4 as it is assigned to their office. In the attached technical comments, we provide suggested additional detailed changes in the form of a markup.

Recommendation 1: In accordance with EPA quality assurance guidance, conduct comprehensive systematic planning for future emission estimating methodology development through either the quality assurance project plan or pre-dissemination review processes.

- **If the EPA chooses to develop a quality assurance project plan, it should first develop data quality objectives for the emission estimating methodologies.**
- **If the EPA chooses to conduct a pre-dissemination review, it should obtain independent, external feedback on the adequacy of its emission estimating methodologies development and plans prior to beginning the project.**

Response 1: OAR and ORD agree with this recommendation and have initiated development of a quality assurance project plan (QAPP) for evaluation of the data and completion of the EEMs. As part of the QAPP development, appropriate data quality objectives will be defined. We intend to make this document publicly available on our website (see below).

Planned completion date: FY 2018, Q2 (March).

Recommendation 2: Based on the results of systematic planning, determine and document the decision as to whether the EPA is able to develop scientifically and statistically sound emission estimating methodologies for each originally planned emission source and pollutant combination.

Response 2: OAR agrees with this recommendation. As noted, completion of this task is contingent upon the results and decisions made during the QAPP development. Upon completion of the QAPP, OAR and ORD will determine which EEMs can be completed and the appropriate schedules for their completion. We intend to make the schedules publicly available on our website (see below).

Planned Completion Date: As stated above, development of the QAPP is ongoing with completion anticipated in the second quarter of FY 2018. Upon completion of the QAPP, decisions on EEM development and schedules will be determined and transmitted to the Office of Enforcement and Compliance Assurance (OECA). We anticipate that the schedules will be established in third quarter of FY 2018.

Recommendation 3: For the emission source and pollutant combinations for which the Office of Air and Radiation determines it can develop scientifically and statistically sound emission estimating methodologies, establish public milestone dates for issuing each draft emission estimating methodology. For any emission source and pollutant combinations for which the

Office of Air and Radiation determines that it cannot develop scientifically and statistically sound emission estimating methodologies, notify the Office of Enforcement and Compliance Assurance of that determination.

Response 3: OAR agrees with this recommendation and will develop a schedule for completion of the EEMs after completion of data review and QAPP development, which is currently planned for completion in the second quarter of FY 2018.

Planned Completion Date: As stated above, development of the QAPP is ongoing with completion anticipated in the second quarter of FY 2018. Upon completion of the QAPP, decisions on EEM development and schedules will be determined and transmitted to OECA and made available to the public. We anticipate that the schedules will be established in the third quarter of FY 2018.

Recommendation 5: Provide the public with the status of emission estimating methodology development and the agency's planned next steps for analyzing the National Air Emissions Monitoring Study data and finalizing the emission estimating methodologies, including the completion milestone dates for each draft emission estimating methodology it plans to develop.

Response 5: OAR agrees with this recommendation and will post the schedule on our website for completion of the EEMs after completion of data review and QAPP development, which is currently planned for completion in the second quarter of FY 2018. We anticipate providing updates on our progress with subsequent website postings.

Planned Completion Date: As stated above, development of the QAPP is ongoing with completion anticipated in the second quarter of FY 2018. Upon completion of the QAPP, decisions on EEM development and schedules will be determined and milestones will be made available to the public. We anticipate that the schedules will be established in the third quarter of FY 2018.

If you have any questions regarding this response, please contact Mike Jones, Office of Air Quality Planning and Standards (OAQPS) Audit Liaison, at (919) 541-0528.

Attachment

Message

From: Vincent, Marc [Vincent.Marc@epa.gov]
Sent: 3/29/2018 2:40:36 PM
To: Jones, Mike [Jones.Mike@epa.gov]
CC: Marusiak, Eleanor [Marusiak.Eleanor@epa.gov]; Collins, JoLynn [Collins.Jolynn@epa.gov]; Graves, Valerie [Graves.Valerie@epa.gov]
Subject: RE: List of OAQPS Corrective Actions due 3/31/18
Attachments: OIG Cert Memo_15-P-0168_22Jul16.docx; Sample Certification Memos for Completion of Corrective Actions.docx

Hi Mike,

Thanks again for your efforts to close out these corrective actions. I entered all the info into MATS, so we should be good to go.

Ex. 5 Deliberative Process (DP)

Marc Vincent
Office of Program Management Operations
Office of Air and Radiation
(202)564-0876

From: Vincent, Marc
Sent: Thursday, March 29, 2018 9:28 AM
To: Jones, Mike <Jones.Mike@epa.gov>
Cc: Marusiak, Eleanor <Marusiak.Eleanor@epa.gov>; Collins, JoLynn <Collins.Jolynn@epa.gov>; Graves, Valerie <Graves.Valerie@epa.gov>
Subject: RE: List of OAQPS Corrective Actions due 3/31/18

Great news, Mike! I will update MATS today, which is perfect timing because the OIG's Semiannual Report to Congress will be issued in April so we can get these off of that report!

Thanks again!

Marc Vincent
Office of Program Management Operations
Office of Air and Radiation
(202)564-0876

From: Jones, Mike
Sent: Thursday, March 29, 2018 8:45 AM
To: Vincent, Marc <Vincent.Marc@epa.gov>
Cc: Marusiak, Eleanor <Marusiak.Eleanor@epa.gov>; Collins, JoLynn <Collins.Jolynn@epa.gov>; Graves, Valerie <Graves.Valerie@epa.gov>
Subject: RE: List of OAQPS Corrective Actions due 3/31/18

Hello, Marc.

The ten OAQPS corrective actions due 3/31/18 have been completed.

Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply with Clean Air Act and Other Statutes

Recommendation 1

The corrective action has been completed. The NAEMS QAPP is available at: <https://www.epa.gov/afos-air/gapp-development-emission-estimating-methodologies-air-emissions-animal-feeding-operations>.

Enhanced EPA Oversight Needed to Address Risks from Declining Clean Air Act Title V Revenues

Recommendations 1 through 3 and 5 through 8

The corrective actions have been completed. The documents *Updated Guidance on EPA Review of Fee Schedules for Operating Permit Programs Under Title V*, and *Program and Fee Evaluation Strategy and Guidance for 40 CFR Part 70*, are responsive to all of the above recommendations. The documents were signed by the OAQPS Director, and distributed to Regional Air Division directors, on March 27, 2018. The documents are available at <https://www.epa.gov/title-v-operating-permits/title-v-operating-permit-policy-and-guidance-document-index>.

Differences in Processing Practices Could Decrease the Reliability of Ozone Data Used for Assessing Air Quality to Protect Public Health

Recommendation 1

The corrective action has been completed. EPA Region 9 worked with the California Air Resources Board (CARB), and the Shasta Air Quality Management District (AQMD) to investigate the cited discrepancies. CARB determined that the time frame for the affected ozone data lies between the calibrations performed on January 9, 2015, and on September 9, 2015, and that the data during this period should be flagged with the QA Qualifier Code QX (*Does not meet QC criteria*). However, the Shasta AQS ozone data from December 4, 2014, through March 11, 2015, has already been flagged (Null Data Qualifier Code AN – *Machine Malfunction*) per AQDA 8309 for a filter leak issue. Therefore, the data in AQS from January 9, 2015 through March 11, 2015 will remain as entered and flagged. The data from March 12 - June 30, 2015 will remain as entered, but will be flagged with the QA Qualifier Code QX. Data entered into AQS for the period July 1 - September 9, 2015 were incorrectly adjusted. These data will be removed from AQS, and the raw data reloaded with the QA Qualifier Code QX. The Shasta AQMD is currently upgrading their computer software systems, they have committed to these actions. The data discrepancies have been investigated, the cause identified, the remedy determined, and the resolution initiated.

Recommendation 2

The corrective action has been completed.

The technical memorandum is available at https://www.epa.gov/sites/production/files/2018-03/documents/clarifications_on_shelter_temperature_for_gaseous_pollutant_methods_03_2018_0.pdf.

The QA Handbook change table is available at <https://www3.epa.gov/ttn/amtic/qalist.html>.

Let me know if you need anything else. Thanks. Mike

Michael N. Jones
Acquisitions and Accountability
Central Operations and Resources
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

From: Jones, Mike
Sent: Tuesday, March 20, 2018 11:03 AM
To: Vincent, Marc <Vincent.Marc@epa.gov>
Cc: Marusiak, Eleanor <Marusiak.Eleanor@epa.gov>; Collins, JoLynn <Collins.Jolynn@epa.gov>
Subject: RE: List of OAQPS Corrective Actions due 3/31/18

Yes, one of those is complete, and the other is the one I referred to that *may possibly* need an extension.

Michael N. Jones
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Central Operations and Resources
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711
Mail Code C404-02 | Phone: 919-541-0528

From: Vincent, Marc
Sent: Tuesday, March 20, 2018 10:48 AM
To: Jones, Mike <Jones.Mike@epa.gov>
Cc: Marusiak, Eleanor <Marusiak.Eleanor@epa.gov>; Collins, JoLynn <Collins.Jolynn@epa.gov>
Subject: RE: List of OAQPS Corrective Actions due 3/31/18

Hi Mike,

I also just realized (apologies and I'm sure you're on top of it) there are two corrective actions due 3/31 as well for the new report issued 2/28/18 titled *Differences in Processing Practices Could Decrease the Reliability of Ozone Data Used for Assessing Air Quality to Protect Public Health*.

Recommendation 1: Assess the risk of any data adjustments impacting the ozone data used in the EPA's National Ambient Air Quality Standards designation determinations. Response 1: The Office of Air and Radiation agrees with this recommendation. The Office of Air and Radiation conducted a review of the 2014-2016 data, which we intend to use for initial area designations for the 2015 ozone NAAQS. Specifically, we calculated 2014-2016 DVs based on the data from AirNow and compared those values to the 2014-2016 DVs in the Air Quality System (AQS). We found 12 monitors where the DV computed using AirNow exceeded the standard (> 70 parts per billion, ppb) and the AQS DV attained the standard (<= 70 ppb). Table 1 below provides a listing of these monitors. Eight of the 12 monitors differed by 1 ppb (i.e., AirNow DV = 71 ppb; AQS DV = 70 ppb). Since the data in AirNow are preliminary values and the validated data in AQS are truncated as specified by regulation, we conclude that the differences at those eight monitors are explainable based purely on data reporting conventions versus monitoring agency data adjustments and will not impact designations. Three of the remaining four monitors were located in counties with other violating monitors, and thus will have no impact upon designations. The final site was located in Shasta County, California, which does not contain any other violating monitors, nor is it in an existing nonattainment area. The Office of Air and Radiation is working with EPA Region 9 to investigate why the differences in the AQS and AirNow data occurred at this site.

Planned Completion Date: FY18, Q2 for the one ozone monitoring site indicated above. Otherwise, OAR considers the assessment to be completed.

Recommendation 2: Issue guidance clarifying the shelter temperature criteria that should be used during data validation. Response 2: The Office of Air and Radiation agrees with this recommendation. The Office of Air and Radiation will issue a technical memo that will be shared with the monitoring agencies and posted to the Ambient Monitoring Technology Information Center (AMTIC). The Office of Air and Radiation will subsequently revise the Quality Assurance

Handbook to clarify the current language on this topic. Since the Quality Assurance Handbook gets updated every five years and was last updated in 2017, OAR will develop and post a table of changes that will apply to monitoring guidance until the next full Quality Assurance Handbook revision.

Planned Completion Date: FY18, Q2 for Technical memo and Quality Assurance Handbook change table posted on AMTIC.

https://www.epa.gov/sites/production/files/2018-02/documents/epaoig_20180228-18-p-0105.pdf

Hopefully, those are on track as well and sorry for my oversight.

Marc Vincent
Office of Program Management Operations
Office of Air and Radiation
(202)564-0876

From: Vincent, Marc
Sent: Tuesday, March 20, 2018 10:39 AM
To: Jones, Mike <Jones.Mike@epa.gov>
Cc: Marusiak, Eleanor <Marusiak.Eleanor@epa.gov>; Collins, JoLynn <Collins.Jolynn@epa.gov>
Subject: RE: List of OAQPS Corrective Actions due 3/31/18

Oh good to know! Thanks, Mike!

Marc Vincent
Office of Program Management Operations
Office of Air and Radiation
(202)564-0876

From: Jones, Mike
Sent: Tuesday, March 20, 2018 10:37 AM
To: Vincent, Marc <Vincent.Marc@epa.gov>
Cc: Marusiak, Eleanor <Marusiak.Eleanor@epa.gov>; Collins, JoLynn <Collins.Jolynn@epa.gov>
Subject: RE: List of OAQPS Corrective Actions due 3/31/18

It's looking good for all of them, though one in particular may possibly need an extension (hopefully not), but it's original planned completion is 3/31/18 so no AA to AIG memo.

Michael N. Jones
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Central Operations and Resources
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U.S. Environmental Protection Agency
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Mail Code C404-02 | Phone: 919-541-0528

From: Vincent, Marc
Sent: Tuesday, March 20, 2018 10:25 AM
To: Jones, Mike <Jones.Mike@epa.gov>
Cc: Marusiak, Eleanor <Marusiak.Eleanor@epa.gov>; Collins, JoLynn <Collins.Jolynn@epa.gov>
Subject: RE: List of OAQPS Corrective Actions due 3/31/18

Hi Mike,

Hope you are doing well. Just wanted to check in on the corrective actions that are due in little over a week.

Please let me know if I can do anything to help.

Marc Vincent
Office of Program Management Operations
Office of Air and Radiation
(202)564-0876

From: Jones, Mike
Sent: Wednesday, February 28, 2018 1:39 PM
To: Vincent, Marc <Vincent.Marc@epa.gov>
Cc: Marusiak, Eleanor <Marusiak.Eleanor@epa.gov>; Collins, JoLynn <Collins.Jolynn@epa.gov>
Subject: RE: List of OAQPS Corrective Actions due 3/31/18

Hi, Marc. Yes, working it. Reached out to the SMEs – will have a better feel for likelihood of meeting planned completion date for the CAs sometime next week. Mike

Michael N. Jones
Acquisitions and Accountability
Central Operations and Resources
Office of Air Quality Planning and Standards
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711
Mail Code C404-02 | Phone: 919-541-0528

From: Vincent, Marc
Sent: Tuesday, February 27, 2018 12:15 PM
To: Jones, Mike <Jones.Mike@epa.gov>
Cc: Marusiak, Eleanor <Marusiak.Eleanor@epa.gov>; Collins, JoLynn <Collins.Jolynn@epa.gov>
Subject: List of OAQPS Corrective Actions due 3/31/18

Hi Mike,

I know you are already working on it, but below is the list of corrective actions due 3/31/18 (not including the one corrective action that was just extended):

Report Title	Recommendation	Corrective Action
Eleven Years After Agreement, EPA Has Not Developed Reliable Emission Estimation Methods to Determine Whether Animal Feeding Operations Comply With Clean Air Act and Other Statutes https://www.epa.gov/sites/production/files/2017-09/documents/epaoig_20170919-17-p-0396.pdf	1. In accordance with EPA quality assurance guidance, conduct comprehensive systematic planning for future emission estimating methodology development through either the quality assurance project plan or pre-dissemination review processes. <ul style="list-style-type: none">If the EPA chooses to develop a quality assurance project plan, it should first develop data quality objectives for the emission estimating methodologies.	OAR and ORD agree with this recommendation and have initiated development of a quality assurance project plan (QAPP) for evaluation of the data and completion of the EEMs. As part of the QAPP development, appropriate data quality objectives will be defined. We intend to make this document publicly available on our website (see below).

	<ul style="list-style-type: none"> If the EPA chooses to conduct a pre-dissemination review, it should obtain independent, external feedback on the adequacy of its emission estimating methodologies development and plans prior to beginning the project. 	
<p>Enhanced EPA Oversight Needed to Address Risks From Declining Clean Air Act Title V Revenues</p> <p>https://www.epa.gov/sites/production/files/2015-09/documents/20141020-15-p-0006.pdf</p>	<p>1. Assess whether the EPA's 1993 fee schedule guidance sufficiently addresses current program issues and requirements related to how Title V fees should be collected, retained, allocated and used. Revise the fee guidance as necessary and re-issue to EPA regions."</p>	<p>Although the 1993 fee schedule guidance, and several other existing fee guidances, provide a useful framework for addressing state fee program issues, we agree to assess our existing fee guidance and to re-issue, revise, or supplement such guidance, as necessary. This effort may be completed independently or in conjunction with actions responsive to recommendations below.</p>
<p>Enhanced EPA Oversight Needed to Address Risks From Declining Clean Air Act Title V Revenues</p> <p>https://www.epa.gov/sites/production/files/2015-09/documents/20141020-15-p-0006.pdf</p>	<p>2. Issue guidance requiring EPA regions to periodically obtain and assess authorized state and local permitting authorities' Title V program revenues, expenses and accounting practices to ensure that permitting authorities collect sufficient Title V revenues to cover Title V program costs."</p>	<p>As noted above, the OAR agrees that revised guidance would be helpful to guide the EPA regional offices in performing fee assessments either as part of or separate from a title V program evaluation. The OAR intends to develop and issue a guidance document that sets forth a fee oversight strategy. In developing this guidance document, the EPA will consider¹⁹ the scope and frequency of fee assessments and their relationship to the National Program Guidance element that currently provides for each region to conduct at least one title V program evaluation each year.</p>
<p>Enhanced EPA Oversight Needed to Address Risks From Declining Clean Air Act Title V Revenues</p> <p>https://www.epa.gov/sites/production/files/2015-09/documents/20141020-15-p-0006.pdf</p>	<p>3. Establish a fee oversight strategy, including a hierarchy of actions and related timeframes, to ensure that EPA regions take consistent and timely actions to identify and address violations of 40 CFR Part 70 Title V fee revenues, expenses and accounting practices."</p>	<p>We commit to working with the regions to develop a guidance document that includes a fee oversight strategy including, for example, a fee review checklist that will provide a framework for the EPA regions to use when performing fee assessments for state permit programs. The CAA and the EPA's implementing regulations already set forth the specific hierarchy of actions, including certain aspects of that process that are discretionary on the part of the EPA. Nonetheless, the EPA anticipates describing not only methods for performing a fee assessment, but also methods for resolving fee issues that do arise.</p>
<p>Enhanced EPA Oversight Needed to Address Risks From Declining Clean Air Act Title V Revenues</p>	<p>5. Require that EPA regions emphasize and include reviews</p>	<p>The OAR agrees that fee assessments should be performed periodically as part</p>

https://www.epa.gov/sites/production/files/2015-09/documents/20141020-15-p-0006.pdf	of Title V fee revenue and accounting practices in all Title V program evaluations.	of the EPA program oversight functions, and the EPA anticipates addressing ²³ that as part of the fee oversight guidance document.
Enhanced EPA Oversight Needed to Address Risks From Declining Clean Air Act Title V Revenues https://www.epa.gov/sites/production/files/2015-09/documents/20141020-15-p-0006.pdf	6. Require that EPA regions address shortfalls in the financial or accounting expertise among regional Title V program staff as the regions update their workforce plans. This may include resource sharing and collaboration with other EPA regions, or use of outside organizations, as appropriate.”	The OAR agrees to develop and issue guidance describing a fee oversight strategy to assist regional staff in conducting title V fee oversight. In addition, the EPA will work with the regions to identify where and how financial and accounting expertise can be accessed when needed.
Enhanced EPA Oversight Needed to Address Risks From Declining Clean Air Act Title V Revenues https://www.epa.gov/sites/production/files/2015-09/documents/20141020-15-p-0006.pdf	7. Require that EPA regions reassess permitting authority fee structures when revenue sufficiency issues are identified during program evaluations, and require fee demonstrations as necessary.”	The OAR expects to consider these elements as part of the development and issuance of the fee oversight strategy guidance document described above.
Enhanced EPA Oversight Needed to Address Risks From Declining Clean Air Act Title V Revenues https://www.epa.gov/sites/production/files/2015-09/documents/20141020-15-p-0006.pdf	8. Require that EPA regions take action on permitting authorities not in compliance with 40 CFR Part 70 by finding them to be inadequately administered or enforced, and issuing the required NODs.”	The CAA and EPA’s implementing regulations set forth the specific hierarchy of actions, including certain aspects of that process that are discretionary on the part of the EPA. The EPA has enforcement discretion under the CAA, and, as identified in Appendix A to the Draft Report, the EPA has successfully resolved numerous issues without actions that the OIG is suggesting that the OAR require of the EPA regional offices. The EPA believes that its commitment to develop and issue a fee oversight strategy guidance will be an effective response to these recommendations. The EPA regions have made findings of deficiencies related to fees in the past (described herein) and the OAR believes the EPA regions will do so in the future, when appropriate and necessary to ensure compliance with the CAA.

Please let me know if I can do anything to assist the completion. Assuming the seven Title V corrective actions are completed, we should also be prepared to draft a certification memo to close the audit out, but that can come later on.

Thank you!

Marc Vincent
Office of Program Management Operations
Office of Air and Radiation
(202)564-0876

Appointment

From: Rakosnik, Delaney [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=274573739A9F446883072599086EDED-RAKOSNIK, D]
Sent: 5/9/2019 3:10:50 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Idsal, Anne [idsal.anne@epa.gov]; David Harlow (harlow.david@epa.gov) [harlow.david@epa.gov]; Josh Lewis (Lewis.Josh@epa.gov) [Lewis.Josh@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Mike Koerber (Koerber.Mike@epa.gov) [Koerber.Mike@epa.gov]; Lassiter, Penny [Lassiter.Penny@epa.gov]; Cozzie, David [Cozzie.David@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Orme-Zavaleta, Jennifer [Orme-Zavaleta.Jennifer@epa.gov]; Vette, Alan [Vette.Alan@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]; Ward, Hillary [Ward.Hillary@epa.gov]; South, Peter [South.Peter@epa.gov]; McKinney, Voronina [mckinney.voronina@epa.gov]; Joseph, Wanda [joseph.wanda@epa.gov]; Hunt, Virginia [Hunt.Virginia@epa.gov]; Eck, Janet [Eck.Janet@epa.gov]; Srivastava, Ravi [Srivastava.Ravi@epa.gov]
CC: Woods, Clint [woods.clint@epa.gov]
Subject: NAEMS Update
Attachments: Wehrum Mtg Rqst-NAEMS Update
Location: WJC - N 2400 + Video with RTP + Ex. 6 Personal Privacy (PP)
Start: 5/14/2019 2:30:00 PM
End: 5/14/2019 3:00:00 PM
Show Time As: Busy

TO: Bill Wehrum, Anne Idsal, David Harlow, Josh Lewis, Peter Tsirigotis, Mike Koerber, Penny Lassiter, David Cozzie, Robin Dunkins, Allison Costa, Bill Schrock, Jennifer Orme-Zavaleta, Alan Vette, William Yelverton, Hillary Ward, Peter South



Wehrum Mtg
Rqst-NAEMS Up...

Appointment

From: Rakosnik, Delaney [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=274573739A9F446883072599086EDED-RAKOSNIK, D]
Sent: 5/9/2019 3:10:50 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Idsal, Anne [idsal.anne@epa.gov]; David Harlow (harlow.david@epa.gov) [harlow.david@epa.gov]; Josh Lewis (Lewis.Josh@epa.gov) [Lewis.Josh@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Mike Koerber (Koerber.Mike@epa.gov) [Koerber.Mike@epa.gov]; Lassiter, Penny [Lassiter.Penny@epa.gov]; Cozzie, David [Cozzie.David@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Orme-Zavaleta, Jennifer [Orme-Zavaleta.Jennifer@epa.gov]; Vette, Alan [Vette.Alan@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]; Ward, Hillary [Ward.Hillary@epa.gov]; South, Peter [South.Peter@epa.gov]; McKinney, Voronina [mckinney.voronina@epa.gov]; Joseph, Wanda [joseph.wanda@epa.gov]; Hunt, Virginia [Hunt.Virginia@epa.gov]; Eck, Janet [Eck.Janet@epa.gov]; Srivastava, Ravi [Srivastava.Ravi@epa.gov]
CC: Woods, Clint [woods.clint@epa.gov]; Rodan, Bruce [rodan.bruce@epa.gov]
Subject: NAEMS Update
Attachments: Wehrum Mtg Rqst-NAEMS Update
Location: WJC - N 2400 + Video with RTP + 202-
Start: 5/14/2019 2:30:00 PM
End: 5/14/2019 3:00:00 PM
Show Time As: Busy

Ex. 6 Personal Privacy (PP)

TO: Bill Wehrum, Anne Idsal, David Harlow, Josh Lewis, Peter Tsirigotis, Mike Koerber, Penny Lassiter, David Cozzie, Robin Dunkins, Allison Costa, Bill Schrock, Jennifer Orme-Zavaleta, Alan Vette, William Yelverton, Hillary Ward, Peter South



Wehrum Mtg
Rqst-NAEMS Up...

Appointment

From: Rakosnik, Delaney [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=274573739A9F446883072599086EDED-RAKOSNIK, D]
Sent: 5/9/2019 3:10:50 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Idsal, Anne [idsal.anne@epa.gov]; David Harlow (harlow.david@epa.gov) [harlow.david@epa.gov]; Josh Lewis (Lewis.Josh@epa.gov) [Lewis.Josh@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Mike Koerber (Koerber.Mike@epa.gov) [Koerber.Mike@epa.gov]; Lassiter, Penny [Lassiter.Penny@epa.gov]; Cozzie, David [Cozzie.David@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Orme-Zavaleta, Jennifer [Orme-Zavaleta.Jennifer@epa.gov]; Vette, Alan [Vette.Alan@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]; Ward, Hillary [Ward.Hillary@epa.gov]; South, Peter [South.Peter@epa.gov]; McKinney, Voronina [mckinney.voronina@epa.gov]; Joseph, Wanda [joseph.wanda@epa.gov]; Hunt, Virginia [Hunt.Virginia@epa.gov]; Eck, Janet [Eck.Janet@epa.gov]
Subject: NAEMS Update
Attachments: Wehrum Mtg Rqst-NAEMS Update
Location: WJC - N 2400 + Video with RTP **Ex. 6 Personal Privacy (PP)**
Start: 5/14/2019 2:30:00 PM
End: 5/14/2019 3:00:00 PM
Show Time As: Busy

TO: Bill Wehrum, Anne Idsal, David Harlow, Josh Lewis, Peter Tsirigotis, Mike Koerber, Penny Lassiter, David Cozzie, Robin Dunkins, Allison Costa, Bill Schrock, Jennifer Orme-Zavaleta, Alan Vette, William Yelverton, Hillary Ward, Peter South



Wehrum Mtg
Rqst-NAEMS Up...

Appointment

From: Rakosnik, Delaney [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=274573739A9F446883072599086EDED-RAKOSNIK, D]
Sent: 6/1/2018 5:23:30 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Woods, Clint [woods.Clint@epa.gov]; Gunasekara, Mandy [Gunasekara.Mandy@epa.gov]; Lewis, Josh [Lewis.Josh@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]; Harnett, Bill [Harnett.Bill@epa.gov]; Lassiter, Penny [Lassiter.Penny@epa.gov]; Dunkins, Robin [Dunkins.Robin@epa.gov]; Costa, Allison [Costa.Allison@epa.gov]; Schrock, Bill [Schrock.Bill@epa.gov]; Bodine, Susan [bodine.susan@epa.gov]; Kelley, Rosemarie [Kelley.Rosemarie@epa.gov]; Sullivan, Tim [Sullivan.Tim@epa.gov]; Orme-Zavaleta, Jennifer [Orme-Zavaleta.Jennifer@epa.gov]; Vette, Alan [Vette.Alan@epa.gov]; Nunez, Carlos [Nunez.Carlos@epa.gov]; Yelverton, William [Yelverton.William@epa.gov]
CC: Patrick Traylor (traylor.patrick@epa.gov) [traylor.patrick@epa.gov]
Subject: NAEMS Schedule
Attachments: OAR Meeting Request- RE: NAEMS Schedule
Location: WJC-N 5400 + Video with RTP + Dial: **Ex. 6 Personal Privacy (PP)**
Start: 6/8/2018 2:00:00 PM
End: 6/8/2018 3:00:00 PM
Show Time As: Busy

TO: Clint Woods, Mandy Gunasekara, Josh Lewis, Peter Tsirigotis, Mike Koerber, Bill Harnett, Penny Lassiter, Robin Dunkins, Allison Costa, Bill Schrock, Susan Bodine, Rosemarie Kelley, Tim Sullivan, Jennifer Orme-Zavaleta, Alan Vette, Carlos Nunez, William Yelverton



OAR Meeting
Request- RE: NA...

From: Woods, Clint [woods.clint@epa.gov]
Sent: 5/21/2019 5:58:48 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]; Idsal, Anne [idsal.anne@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Schwab, Justin [Schwab.Justin@epa.gov]
CC: Lewis, Josh [Lewis.Josh@epa.gov]
Subject: Fwd: House releases report on the 2020 Interior-EPA spending bill

Some policy provisions in the report:

The Committee is concerned by the Agency's decision in October 2018 to eliminate the Particulate Matter Review Panel (PMRP). In past reviews of particulate matter (PM), the Clean Air Scientific Advisory Committee (CASAC) has relied on the PMRP's reviews of the CASAC's integrated science assessments to provide additional expertise and experience beyond that of the members of CASAC. To ensure that the CASAC has access to the highest quality information, the Committee directs the Agency to enter into a contract with the National Academies of Sciences, Engineering, and Medicine (NAS) within 30 days of enactment to conduct an independent scientific review of EPA's Integrated Science Assessment (ISA) for Particulate Matter, External Review Draft. The Agency should ensure that the NAS review examines the ISA's review, synthesis, and evaluation of the science relevant to evaluating the health effects of exposure to PM and as a scientific foundation for evaluating the adequacy of the National Ambient Air Quality Standards for PM for protecting public health. The review should also consider the ISA's evaluation of evidence for drawing scientific conclusions and making causal judgments. The NAS should provide the report to the Agency and to the Committee within one year from the time the contract is initiated. The Committee is aware the CASAC has recommended in its April 11, 2019 letter to the Administrator that EPA produce a new draft of the ISA and that this new draft be resubmitted for CASAC review. The Committee expects the NAS review to include a review of the ISA draft of October 2018 and any subsequent ISA review produced by EPA in response to the CASAC review.

Maintaining IRIS Program Integrity.—The Committee is deeply concerned that the Agency has been inappropriately assigning resources provided for the Integrated Risk Information System (IRIS) in fiscal years 2018 and 2019 to support work in the Office of Pollution Prevention and Toxics. As in the previous two fiscal years, the Agency is directed to continue funding for the IRIS program at the fiscal year 2017 level, and to continue the program within the Office of Research and Development. Workforce costs for IRIS staff who have been detailed to other programs or to other agencies should not be included in this total. Within 10 days of enactment, the Agency is directed to provide to the Committee data on the amount of IRIS staff time utilized to support the TSCA program during fiscal years 2018 and 2019, including the number of individuals assigned to TSCA efforts and hours worked, by month. The Agency is further directed to provide ongoing quarterly reports in fiscal year 2020 of the same information.

Strengthening Use of Science.—The Committee is aware that the Agency has proposed a rule “Strengthening Transparency in Regulatory Science” (Docket ID No. EPA-HQ-OA-2018-0259), and understands that the Administrator has recently stated that the Agency intends to finalize the rule in the near future. The Committee is also aware that shortly after the rule was proposed, the SAB wrote to the Administrator in June 2018 requesting the opportunity to comment on the rule. The Administrator responded in April 2019 and noted that the Agency would benefit from consultation with SAB on the proposal.

The Agency is directed to engage in formal consultation on the proposed rule with the SAB. Further, given the centrality of scientific studies in Agency decision-making and the unique experience and expertise of the SAB on such matters, the Committee urges the Agency to seek feedback on the full list of issues on which SAB indicated the Agency would benefit. The Committee expects the Agency to take no final action on the rule until the Agency has concluded such consultations.

Additionally, within 30 days after enactment or 30 days after this rule is finalized, whichever is later, the Committee directs the Agency to enter into a contract with the NAS to review this rule. The review should assess the manner in which the rule alters the ability of the Agency to use publicly available peer-reviewed scientific and medical studies in its regulatory decision-making, including what the NAS considers to be the best available scientific information, and be completed within 270 days.

Estimating Air Emissions from Animal Operations.—The Committee is aware that the Agency is working on the development of emission estimating methodologies for Animal Feeding Operations (AFOs), and has announced that it intends to release draft models for different types of livestock operators over the course of the next year. The Committee supports the Agency's efforts to develop accurate, robust, and accessible models for estimating these emissions, and urges the Agency to prioritize these efforts so that these methodologies can be finalized as quickly as possible.

Clean Air.—The Committee recommends \$274,276,000, a \$1,168,000 increase above the enacted level and \$118,462,000 above the request. The recommendation includes \$97,249,000 for Atmospheric Protection program project, and the Committee directs the Agency to apply the increase above the enacted level evenly to the greenhouse gas reporting program and the preparation of the Inventory of U.S. Greenhouse Gas Emissions and Sinks, in fulfillment of U.S. treaty obligations under the 1992 Framework Convention on Climate Change. The Committee continues to support the EnergySTAR program and rejects the proposed shift to a fee-based funding mechanism, and provides \$42,000,000 for its continued operation. Further, the Committee rejects the proposed termination of voluntary programs such as Natural GasSTAR, AgSTAR, and other partnership programs where the Agency works collaboratively with non-governmental entities to identify beneficial methods to reduce emissions, pollution, and increase efficiency. The Committee increases funding for Federal Support for Air Quality Management by \$2,704,000 above the enacted level prior to the application of the rescission, and directs that the increase be applied to providing technical assistance and support to state, tribal, and local air programs. The proposed increases for Administration priorities listed in the request are rejected. The Committee provides funding for Federal Stationary Source Regulation at the requested level. Finally, the Committee directs that funding for the remaining program projects be maintained at the levels specified in the fiscal year 2019 operating plan prior to the application of the rescission, including \$8,736,000 to assist with the international phase-out of ozone depleting substances under the Montreal Protocol.

Indoor Air and Radiation.—The Committee recommends \$27,637,000, equal to the enacted level and \$23,111,000 above the request. The Committee notes that \$2,686,000 was rescinded in fiscal year 2019. The Agency is directed to continue to operate the Radon program as in fiscal year 2019. Additionally, the Committee notes the need to continue to maintain the U.S. source standard for radon gas for use by states and industry as the national benchmark for radon measurement devices, and encourages the Agency to collect available radon test data to update the national U.S. EPA Radon Map and develop locality-specific classifications of radon risks. The Committee directs that funding for the other program projects be allocated in the manner specified in the 2019 operating plan prior to the application of the rescission.

Diesel Emissions Reductions Grants (DERA).—The Committee recommends \$50,000,000 for DERA grants. More than 10 million older, heavily polluting diesel engines remain in use that have yet to be retrofitted, repowered, or replaced, and over one million are expected to remain in use in 2030. For fiscal year 2020, the Committee directs EPA to continue to make at least 70 percent of DERA grants available to improve air quality in non-attainment areas.

Targeted Airshed Grants.—The Committee recommends \$30,000,000 for targeted airshed grants to reduce particulate matter 2.5 and ozone air pollution in non-attainment areas.

Begin forwarded message:

From: "Woods, Clint" <woods.clint@epa.gov>
Date: May 21, 2019 at 12:05:21 PM EDT
To: "Lyons, Troy" <lyons.troy@epa.gov>
Subject: Fwd: House releases report on the 2020 Interior-EPA spending bill

Begin forwarded message:

From: "POLITICO Pro Energy Whiteboard" <politicoemail@politicopro.com>
Date: May 21, 2019 at 11:06:00 AM EDT
To: <woods.clinton@epa.gov>
Subject: House releases report on the 2020 Interior-EPA spending bill
Reply-To: "POLITICO subscriptions" <reply-fe8b1c70736d017e70-1159543_HTML-854520896-1376319-0@politicoemail.com>

By Alex Guillén and Annie Snider

05/21/2019 11:04 AM EDT

The House Appropriations Committee today released its 221-page report on the fiscal 2020 Interior-EPA spending bill.

The report directs \$3 million to support EPA's work to set an enforceable drinking water limit for PFAS and \$15 million to research in support of designating the chemicals as hazardous substances under the Superfund law.

It also urges the Agency for Toxic Substances and Disease Registry, a division of the CDC, to undertake additional health studies on the class of chemicals. The Trump administration last year sought to block an ATSDR report on a handful of PFAS' that found the chemicals were dangerous at levels far lower than EPA deemed safe.

The full committee will mark up the \$37.3 billion package on Wednesday.

To view online:

<https://subscriber.politicopro.com/energy/whiteboard/2019/05/read-the-house-report-on-the-2020-interior-epa-spending-bill-3292523>

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Message

From: Lewis, Josh [Lewis.Josh@epa.gov]
Sent: 5/13/2019 8:54:01 PM
To: Wehrum, Bill [Wehrum.Bill@epa.gov]
CC: Idsal, Anne [idsal.anne@epa.gov]; Woods, Clint [woods.clint@epa.gov]; Harlow, David [harlow.david@epa.gov]; Dominguez, Alexander [dominguez.alexander@epa.gov]; Atkinson, Emily [Atkinson.Emily@epa.gov]; Rakosnik, Delaney [rakosnik.delaney@epa.gov]; Jacks, Susan [Jacks.Susan@epa.gov]; Shaw, Betsy [Shaw.Betsy@epa.gov]
Subject: Calendar + Materials for Tuesday
Attachments: April 2019 OAR Technical Assistance Activities.docx; OAR - May 2019.xlsx; OAR May 2019 Business Review Agenda.docx; ATT59153; ATT89573; ATT94671; ATT13487; ATT21082; ATT04078; ATT99560; ATT53044; ATT27530; ATT16659; ATT93579; ATT72278; ATT69698; ATT06559; ATT32416; ATT80895; ATT71941; ATT72874; ATT87607; ATT44443; ATT07732; ATT34533

Mike will be picking you and David up at the airport in the morning. Hard copies of the materials below (and materials for other meetings) will be printed for you in NC.

May 2019

▲ Tue, May 14



Before Free

6:30

AM

6:30 travel to Philadelphia Airport

AM –

7:00

AM

7:00 TSA security

AM –

7:30

AM

7:30 Board

AM –

8:00

AM

8:00 Day Trip to RTP

AM –

5:00

PM

8:05 AA flight # 1710 from

AM – Philadelphia Airport to Raleigh

9:30

AM

10:30 NAEMS Update

AM –

11:00

AM

Ex. 5 Deliberative Process (DP)



OAD May 2019
Business Review...



April 2019 OAD
Technical Assist...



Ex. 5 Deliberative Process (DP)

5:00 Free

PM –

5:15

PM

5:15 AA Flight # 2018 from Raleigh
PM – to Philadelphia

6:59

PM

After Free

6:59

PM

Josh Lewis
Chief of Staff
EPA/Office of Air and Radiation
Office: 202 564 2095